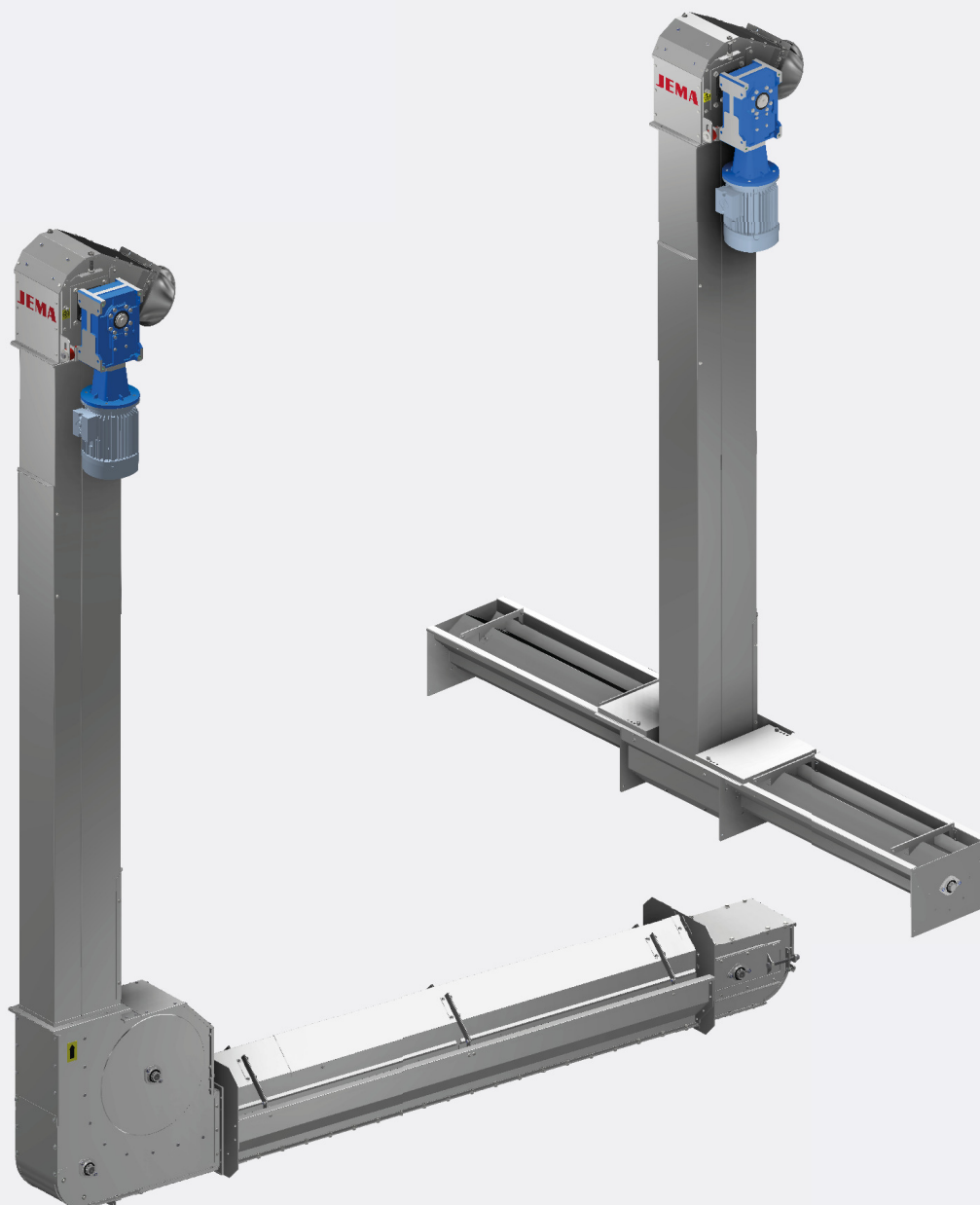


MANUAL CHAIN ELEVATOR T20/T40



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Introduction

JEMA AGRO A/S is a modern factory, which specializes in producing and delivering equipment for transport systems for raw or cleaned grain, seeds and granulates.

Our current product range is the result of more than 75 years experience in machine development especially for the agricultural sector in close collaboration with our customers – and our company is highly regarded in the industry due to the quality and versatility of our products.

JEMA AGRO A/S conveyors and transport systems are compatible with ALL types of dryer- and silage systems.

Important!

Please read these instructions carefully before assembly and use.

EU Declaration of conformity

The manufacturer: JEMA AGRO A/S
Kløservejen 2, Sahl
DK-8850 Bjerringbro
Phone +45 86 68 16 55

Hereby declares that:

Product: Chain elevator
Type: T20/T40
Year of production: 2006

- Conforms to the Machine directive 2006/42/EF with special reference to the directive appendix 1 regarding major health- and safety regulations regarding construction and production of the machines

The following standards have been applied:

EN ISO 12100-1:2005 Basic terminology and methodology
EN ISO 12100-2:2005 Technical principles
EN 1050:1997 Principles for risk assessment

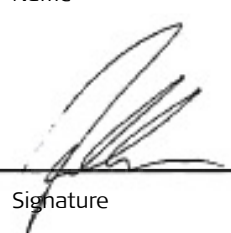
- is in accordance with EMC-directive 04/108/EF of 15th December 2004 regarding electromagnetic compatibility.

Director Jens-Peter Pedersen

Title Name

04.12.2008

Date Signature



Conditions of use

JEMA AGRO A/S chain elevators T20/T40 have been constructed for transport of grain, granular materials and seed mix.

- The chain elevators T20/T40 must only be used for the product(s) specified in the contract.
- The electrical connections must be done by a qualified electrician.
- The chain elevators T20/T40 must be potential adjusted in accordance with the current local regulations
- The chain elevators have been thoroughly controlled regarding maintenance, and a checklist has been drawn up containing regular cleaning- and maintenance intervals. If these intervals are not observed, the JEMA AGRO conditions for a trouble-free operation cease to exist and the warranty will be invalid.
- During installation, maintenance or repair the electric supply to the chain elevators must be disconnected and secured against accidental reconnection.
- The user manual must be kept / be available in close proximity to the chain elevator T20/T40

General information

Delivery

The chain elevator is disassembled for shipment. Standard packing (pallet/wooden boxes, grid boxes, etc.) Regarding the actual transport there are no specific requirements apart from normal consideration.

The shipment includes the parts stated in the order confirmation.

Please read this manual carefully before installation and use.

Storage

There are no precautions regarding long-time storage.

After delivery the components must be kept in a suitable, dry storage area before installation.

Noise level

A noise level test was conducted for the chain elevator. The level has been measured in a distance of 1 m from the conveyor surface and at a height of 1.6 m from the floor level. During the test the chain elevator was running unloaded, which is the operational state of maximum noise level.

The measured noise level is not higher than **70 dB**

Type Plate

The type plated is fitted on the drive station.



Construction

The chain elevator type T20/T40 is made up of standard elements, which can be combined and easily integrated into all grain conveyor systems. It is characterized by a large capacity and compact dimensions. Both elevators work efficiently in all positions and compared to their capacity (output), they both have low power consumption.

The chain elevator is made of galvanized steel, which makes it perfectly suited for outdoor use. It is furthermore fitted with a high quality roller chain with bolted rubber flights.

The chain elevator can be combined for both vertical and horizontal transport by using side augers in troughs. These are driven from the elevator bottom shaft, so both elevator and side auger are driven by the same motor, alternatively the side auger can be driven separately by a directly connected gear motor.

The side auger in trough is available for both left and right elevator. The augers are Ø135 or Ø180. 135 diameter augers have an inclination of S60, S90, S125, available in lengths of 2.0m, 1.25m, 1.0m, and 0.5m. 180 diameter augers have an inclination of S160 available in lengths of 2.0m, 1.0m, and 0.5m

Another combination of vertical and horizontal transport can be obtained by using a 90° bend. The inlet trough is fitted horizontally and attached with a 90° bend to the vertical part of the elevator. The inlet troughs are available in lengths of 2.0m, 1.0m and 0.5m.

The chain elevator consists of:

- Elevator head
- Elevator boot
- 2.5m extensions with inspection door
- Extensions from 0.125m to 2.5m
- Chain with rubber slats
- Motor
- Possibly side augers
- Possibly inlet for extensions (return side)

Capacity

The table below shows the various density max capacities:

Density	T20 (33 m ³ /h)	T40 (60 m ³ /h)
650 kg. pr. m ³	21 t/h	39 t/h
700 kg. pr. m ³	23 t/h	42 t/h
750 kg. pr. m ³ (wheat)	25 t/h	45 t/h

Above capacity measured in cleaned, storable material at a power supply of 50 Hz
The capacity varies according to the nature of the material.

Max capacity for chain elevator without auger:

T20, inlet from both sides without propeller	14 t/h
T20, inlet from both sides with propeller	25 t/h
T40, with inlet from both sides without propeller	25 t/h
T40, with inlet from both sides with propeller	45 t/h

Above capacity measured in cleaned, storable material at a density of **750 kg/m³**.

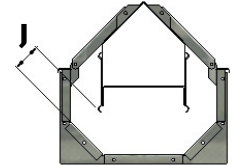
Capacity with side auger from one side:

	Auger d135 S125	Auger d135 S90	Auger d135 S60	Auger d180 S160
Elevator with gear motor 280 rpm Elevator with pulley kit motor 1440 rpm rpm.: bottom shaft / auger 315 rpm	22,0 t/h	17,0 t/h	13,0 t/h	-
Elevator with gear motor 180 rpm Elevator with pulley kit motor 1000 rpm rpm. bottom shaft / auger 210 rpm	15,0 t/h	11,0 t/h	9,0 t/h	-
Auger driven by separate gear motor 250 rpm	17,5 t/h	12,5 t/h	10,0 t/h	-
Auger driven by separate gear motor 280 rpm	19,5 t/h	15,0 t/h	11,5 t/h	-
Auger driven by separate gear motor 315 rpm	22,0 t/h	17,0 t/h	13,0 t/h	-
Auger driven by separate gear motor 405 rpm	28,0 t/h	22,0 t/h	17,0 t/h	-
Auger driven by separate gear motor 225 rpm	-	-	-	45 t/h

Above capacity measured in cleaned, storable material at a density of **750 kg/m³**.

Inlet trough adjustment:

T20	J opening	Capacity t/h	T40	J opening	Capacity t/h
Gear motor 280 rpm	15	5	Gear motor 280 rpm	15	25
	25	11		25	31
	35	18		35	38
	45	25		45	45
Gear motor 180 rpm	20	10	Gear motor 180 rpm	20	30
	35	16		35	40
	50	23		50	50
	65	30		65	60



The capacity is measured at a density of 750 kg/m³.

Important! – The J dimension in the table is just for guidance.

Important! - Remember to adjust the inlet plates before starting.

Technical specifications – power consumption

Chain elevator T20 - power consumption in kW:

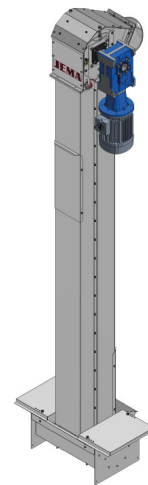
Type	0-9 m	10-12 m	13-16 m	17-20 m
T20	2,2 kW	3,0 kW	4,0 kW	5,5 kW

Chain elevator T40 - power consumption in kW:

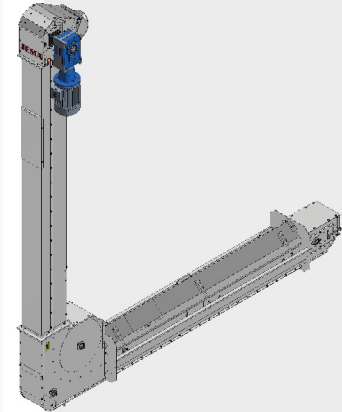
Type	0-7 m	8-10 m	11-14 m	15-20 m
T40	2,2 kW	3,0 kW	4,0 kW	5,5 kW

Additional power consumption per meter auger in trough d135 = 0.35 kW.

Additional power consumption per meter auger in trough d180 = 1,00 kW.



Height, metres	Length		
	2,35 m	3,35 m	4,35 m
	kW T20/T40	kW T20/T40	kW T20/T40
3,65	2,2/3,0	2,2/3,0	2,2/3,0
4,61	2,2/3,0	2,2/3,0	2,2/3,0
5,61	2,2/3,0	2,2/3,0	3,0/3,0
6,61	2,2/3,0	3,0/3,0	3,0/4,0
7,57	3,0/3,0	3,0/4,0	3,0/4,0
8,57	3,0/4,0	3,0/4,0	4,0/4,0
9,66	3,0/4,0	4,0/4,0	4,0/4,0
10,66	4,0/4,0	4,0/4,0	4,0/5,5
11,66	4,0/4,0	4,0/5,5	4,0/5,5
12,62	4,0/5,5	4,0/5,5	5,5/5,5
13,62	4,0/5,5	5,5/5,5	5,5/5,5
14,58	5,5/5,5	5,5/5,5	5,5/5,5
15,58	5,5/5,5	5,5/5,5	5,5/5,5
16,58	5,5/5,5	5,5/5,5	
17,66	5,5/5,5		



Height, metres	Length			
	5,35 m	6,35 m	7,35 m	8,35 m.
	kW T20/T40	kW T20/T40	kW T20/T40	kW T20/T40
3,65	2,2/3,0	3,0/3,0	3,0/4,0	3,0/4,0
4,61	3,0/3,0	3,0/4,0	3,0/4,0	4,0/4,0
5,61	3,0/4,0	3,0/4,0	4,0/4,0	4,0/5,5
6,61	3,0/4,0	4,0/4,0	4,0/4,0	4,0/5,5
7,57	4,0/4,0	4,0/4,0	4,0/5,5	4,0/5,5
8,57	4,0/4,0	4,0/5,5	4,0/5,5	5,5/5,5
9,66	4,0/5,5	4,0/5,5	5,5/5,5	5,5/5,5
10,66	4,0/5,5	5,5/5,5	5,5/5,5	5,5/5,5
11,66	5,5/5,5	5,5/5,5	5,5/5,5	5,5/5,5
12,62	5,5/5,5	5,5/5,5	5,5/5,5	
13,62	5,5/5,5	5,5/5,5		
14,58	5,5/5,5			

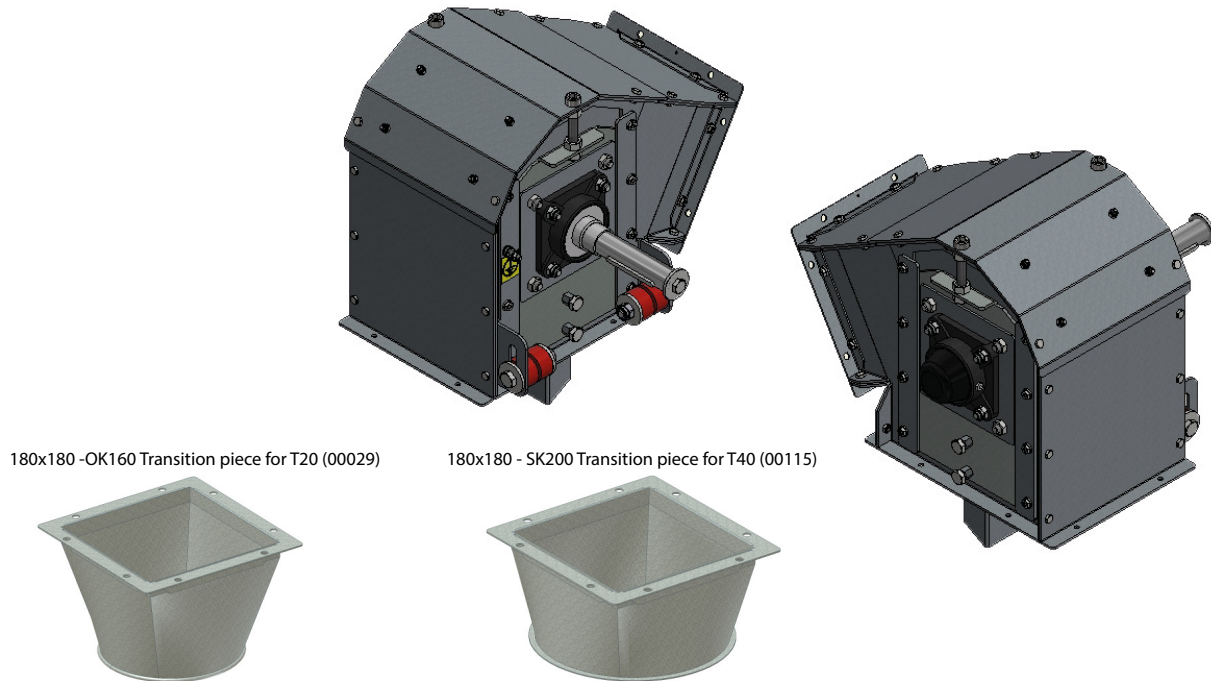
Elevator head

The elevator head is delivered as a complete unit. The motor is supplied separately.

Outlet flange is 180x180mm and goes out in 60° - see dimension sketch.

There is transition piece to OK160 for T20, and transition piece to SK200 for T40.

Square bends 180x180 are available in 15°, 30° and 45° - see under accessories.



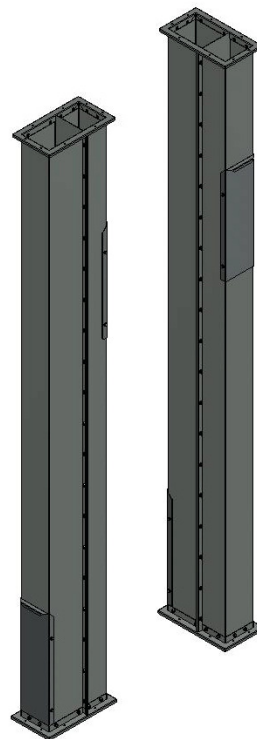
Elevator extensions

The extensions are available in various lengths:
2.5 m, 2.0 m, 1.0 m, 0.5 m, 0.25 m, 0.125 m.

Extensions with inspection doors are available in
lengths of 2.5 m.

Inlet troughs are available in lengths of:
2.0 m, 1.0 m, and 0.5 m.

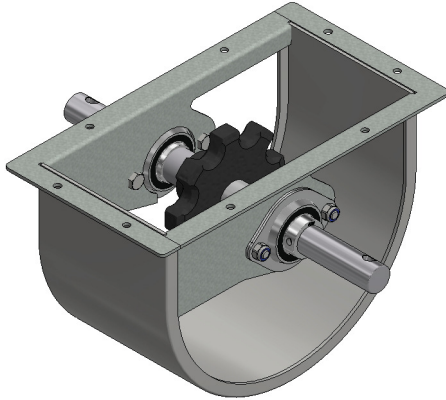
The elements can be combined to obtain any
lengths - for the vertical elevator with steps
of 0.125 m. and with intervals of 0.5 m for the
horizontal elevator - up to a total length of 20.0 m.



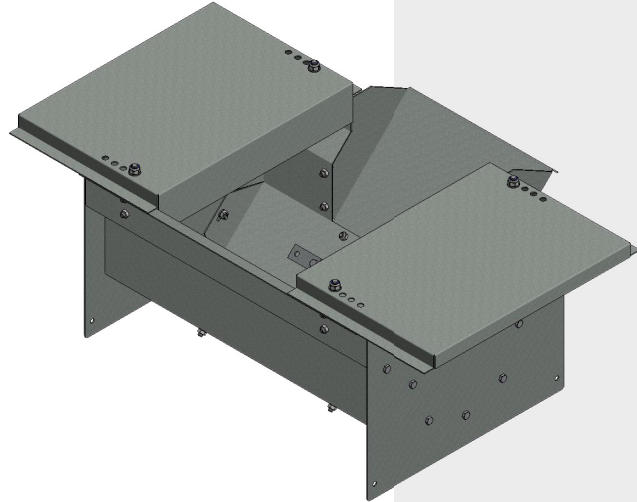
Elevator boot

The open boot section is fitted in Trough under elevator from vertical position to 45°. Augers in trough can be fitted to the open boot section or flex-boot in one or both sides.

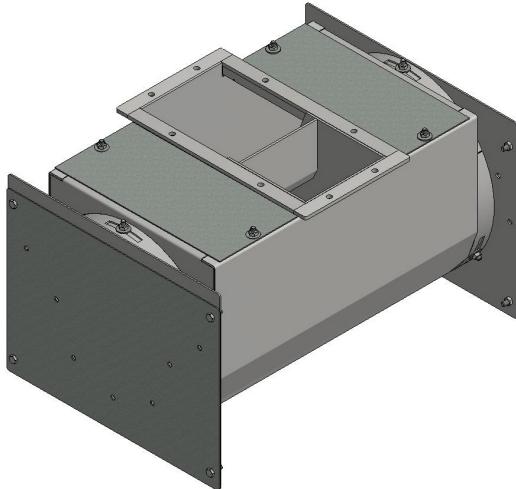
Open elevator boot



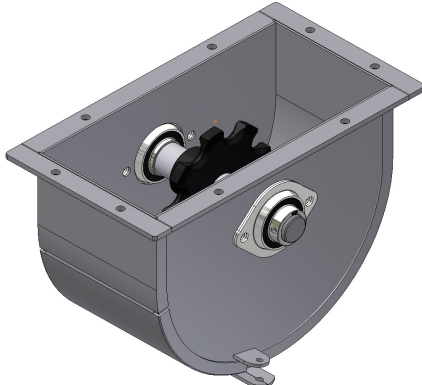
Trough under elevator



Flex-boot



Closed elevator boot



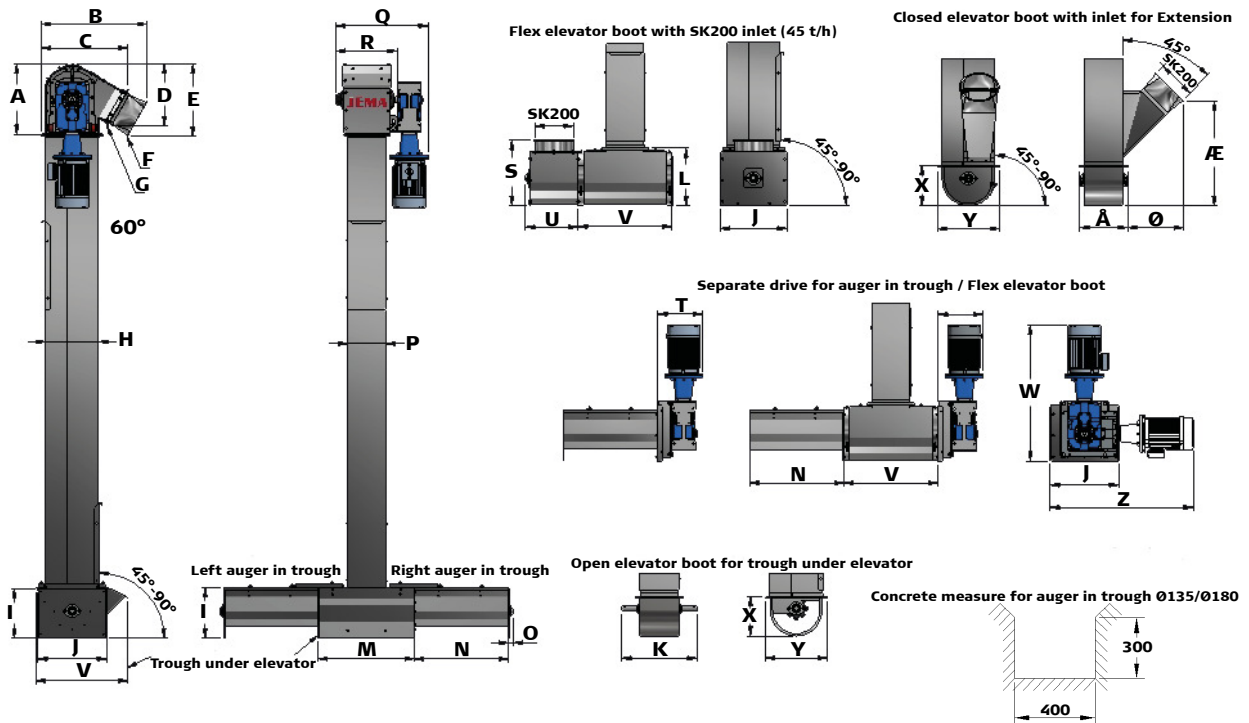
Scale drawing T20/T40 (geared motor)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
T20	374	560	459	329	386	OK160	180x180	279	270	365	335	310	520	500/1000/2000
T40	374	560	459	329	386	SK200	180x180	279	270	365	400	310	520	500/1000/2000

Dimensions in mm

	O	P	Q	R	S	T	U	V	W	X	Y	Z	Æ	Ø	Å
T20	25	135	452	262	347	264	280	505	798	215	330	835	554	297	188
T40	25	200	517	327	347	264	280	505	798	215	330	835	554	297	253

Dimensions in mm



Fill up around the auger trough with dry sand, and then trim to the edges with concrete.

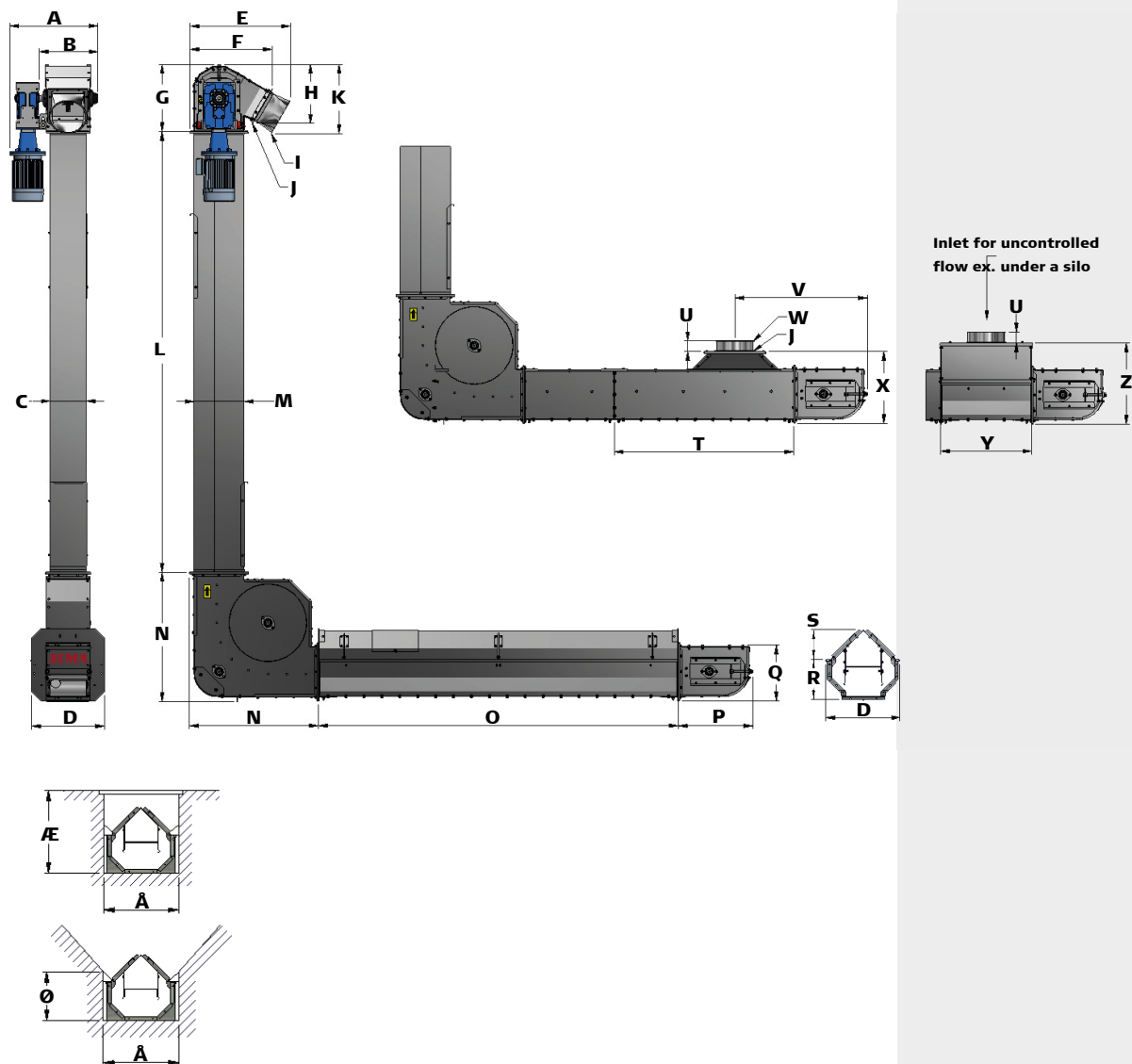
Scale drawing T20/T40 with 90° bend (geared motor)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
T20 / T44	452	262	135	347	560	459	374	329	OK160	180x180	386	2500/2000/1000/500/250/125	279	720
T40 / T45	517	327	200	412	560	459	374	329	SK200	180x180	386	2500/2000/1000/500/250/125	279	720

Dimensions in mm

	O	P	Q	R	S	T	U	V	W	X	Y	Z	Æ	Ø	Å
T20 / T44	2000/1000/500	415	312	236	150	2000/1000/500/250	60	742	SK200	406	500	455	430	300	400
T40 / T45	2000/1000/500	415	312	236	166	2000/1000/500/250	60	742	SK200	406	500	455	470	300	460

Dimensions in mm



Upon receipt

Please check that all parts and components are included in the shipment and check for possible transport damages.

NB: Make sure that the relevant supplier documentation is attached to the gear and motor.
In case of missing documentation, please contact JEMA AGRO A/S – remember to state the order no.

Remember all necessary safety equipment before installation.

Please read this manual carefully before assembly or installation work begins.

Warning labels

The chain elevator is fitted with warning labels.

Warning!

The covers and shields must never be opened or removed, when the machine is working.

Warning!

Always keep hands away from rotating augers/propellers.



Foundation

The chain elevator should be placed on a sufficiently hard, level surface that is able to carry the load in question.

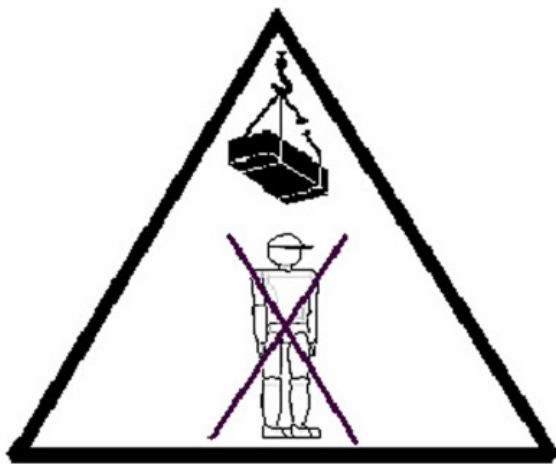
Lifting equipment

Make sure to have the required SWL-approved lifting equipment/crane, required for the actual job.

The lifting equipment must be approved to carry the load in question.

The load capacity for the individual components can be found in "Parts list T20/T40" in this manual.

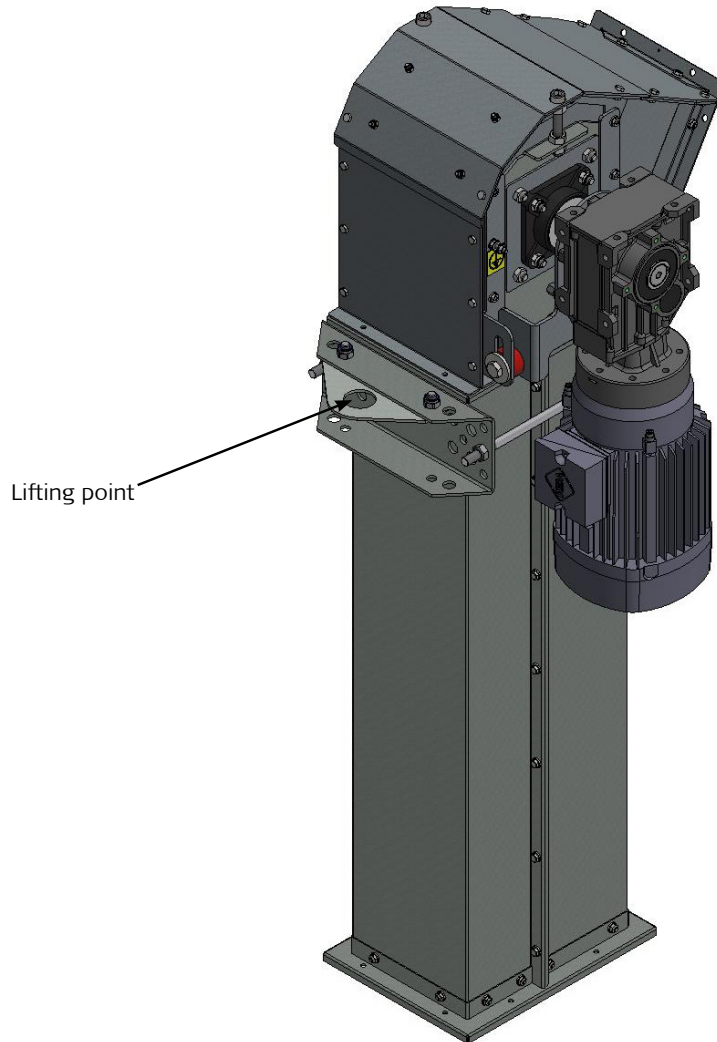
The total weight of the machine is stated in the section "Weight table chain elevator T20/T40".



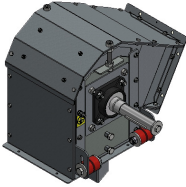

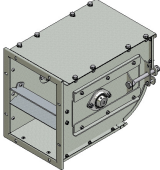
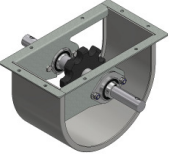
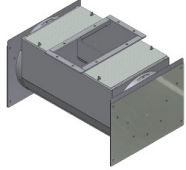
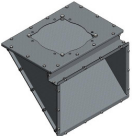
NB: Always make sure that nobody is standing under a suspended load.

Lifting instructions

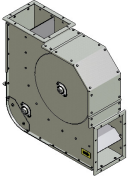
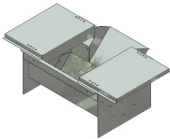


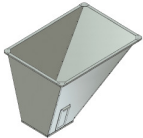
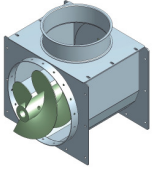
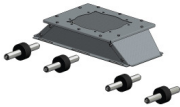
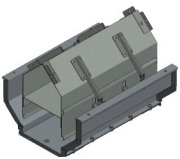
The drawing below shows how the the chain elevator can be lifted using attached brackets (bracket are accessories).



Weight table – individual components T20/T40

	Description	T20 Part no.	Weight kg	T40 Part no.	Weight kg
	Drive station right for gear motor	20400	26,0	40400	29,0
	Drive station left for gear motor	20405	26,0	40405	29,0
	Transition piece 180x180-OK160 / 180x180-SK200	00029	1,1	00115	1,1
	Tension section	44095	12,7	45095	13,8
	Elevator boot d135	51142	7,0	52142	8,0
	Elevator boot d135, with ball bearings in sprocket	51143	8,0	52143	9,0
	Elevator boot, closed	51231	7,0	52231	8,0
	Flex elevator boot	51312	20,0	52312	20,7
	Flex elevator boot, with ball bearings in sprocket	51316	22,0	52316	22,7
	Extension 2.5 m with inspection door	51012	34,3	52012	40,4
	Extension 2.5 m	51021	33,2	52021	39,1
	Extension, 2.0 m	51022	26,8	52022	31,5
	Extension, 1.0 m	51024	14,0	52024	16,4
	Extension, 0.5 m	51025	8,1	52025	9,5
	Extension, 0.25 m	51026	4,9	52026	5,7
	Extension 1.25 m	51027	3,3	52027	3,9
	Side inlet for cutout in side plate SK200 / 180x180	51184	6,0	51184	6,0

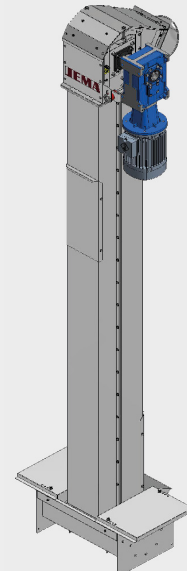
Weight table – individual components T20/T40

	Description	T20 Part no.	Weight kg	T40 Part no.	Weight kg
	90° bend without chain with sprocket	51060	37,0	52060	42,5
	Trough under elevator 45/90°	51056	13,0	51056	13,0
	Hopper for inlet trough 0,5m.	44038	12,0	45038	12,7
	Chain complete, running metres	20028	2,0	40028	4,0
	Hopper for elevator	00082	35,0	00082	35,0
	Inlet d200 for flex boot, 45 t/h from one side, Right	-		52320	15,0
	Inlet d200 for flex boot, 45 t/h from one side, Left	-		52321	15,0
	Inlet for horizontal extension, 180x180	51130	5,0	52130	5,7
	Inlet trough 2,0m. w/insp. cover	44300	49,1	45300	54,6
	Inlet trough 1,0m.	44301	25,4	45301	28,3
	Inlet trough 0,5m.	44302	13,8	45302	15,4
	Inlet trough 2,0m. with PEHD	44300-P	52,4	45300-P	59,1
	Inlet trough 1,0m. with PEHD	44301-P	27,1	45301-P	30,5
	Inlet trough 0,5m. with PEHD	44302-P	14,7	45302-P	16,4

Weight table – chain elevator T20/T40

Complete with gear motor, trough under elevator and right + left propeller with pin.

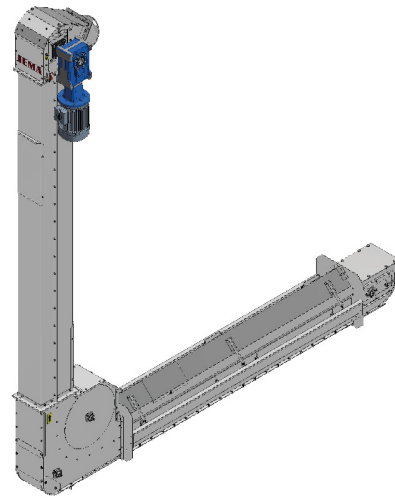
Height, metres	T20	T40
	Pinion gear motor 280 rpm	Pinion gear motor 280 rpm
	Kg.	Kg.
3,0	204,0	221,2
4,0	222,0	245,2
5,0	240,0	269,2
6,0	258,0	299,2
7,0	276,0	323,2
8,0	294,0	341,2
9,0	312,0	365,2
10,0	336,0	394,2
11,0	354,0	418,2
12,0	372,0	442,2
13,0	390,0	460,2
14,0	413,0	495,2
15,0	431,0	519,2
16,0	449,0	543,2
17,0	478,0	567,2
18,0	496,0	585,2
19,0	514,0	603,2
20,0	532,0	621,2



Weight table T20 with 90° bend

Complete with gear motor, 90° bend and inlet trough.

Height in metres	Length		
	2,0 m.	3,0 m.	4,0 m.
	Motor 280 rpm	Motor 280 rpm	Motor 280 rpm
	Kg	Kg	Kg
4,0	256,0	292,0	312,5
5,0	274,0	310,0	332,5
6,0	292,0	328,0	354,5
7,0	310,0	352,0	372,5
8,0	334,0	370,0	390,5
9,0	352,0	388,0	408,5
10,0	370,0	406,0	431,5
11,0	388,0	429,0	449,5
12,0	411,0	447,0	467,5
13,0	429,0	465,0	485,5
14,0	447,0	483,0	512,5
15,0	465,0	512,0	530,5
16,0	494,0	530,0	548,5
17,0	512,0	548,0	
18,0	530,0		

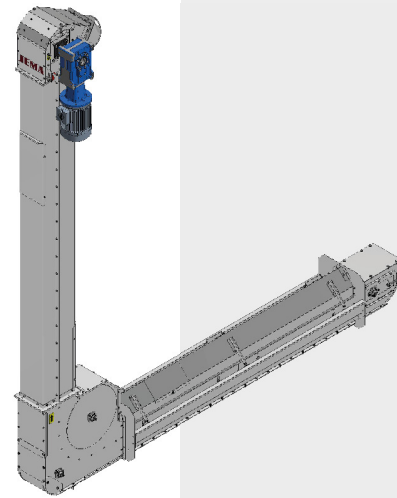


Height in metres	Length			
	5,0 m.	6,0 m.	7,0 m.	8,0 m.
	Motor 280 rpm	Motor 280 rpm	Motor 280 rpm	Motor 280 rpm
	Kg	Kg	Kg	Kg
4,0	349,0	375,0	411,0	432,0
5,0	367,0	393,0	429,0	450,0
6,0	389,0	411,0	447,0	473,0
7,0	409,0	429,0	470,0	491,0
8,0	427,0	452,0	488,0	509,0
9,0	450,0	470,0	506,0	527,0
10,0	468,0	488,0	524,0	556,0
11,0	486,0	506,0	553,0	574,0
12,0	504,0	535,0	571,0	592,0
13,0	533,0	553,0	589,0	
14,0	551,0	571,0		
15,0	569,0			

Weight table T40 with 90° bend

Complete with gear motor, 90° bend and inlet trough.

Height in metres	Length		
	2,0 m	3,0 m	4,0 m
	Motor 280 rpm	Motor 280 rpm	Motor 280 rpm
	Kg	Kg	Kg
4,0	298,0	334,0	354,5
5,0	316,0	352,0	374,5
6,0	334,0	370,0	396,5
7,0	352,0	394,0	414,5
8,0	376,0	412,0	432,5
9,0	394,0	430,0	450,5
10,0	412,0	448,0	473,5
11,0	430,0	471,0	491,5
12,0	453,0	489,0	509,5
13,0	471,0	507,0	527,5
14,0	489,0	525,0	556,5
15,0	507,0	554,0	574,5
16,0	536,0	572,0	592,5
17,0	554,0	590,0	
18,0	572,0		



Height in metres	Length			
	5,0 m	6,0 m	7,0 m	8,0 m
	Motor 280 rpm	Motor 280 rpm	Motor 280 rpm	Motor 280 rpm
	Kg	Kg	Kg	Kg
4,0	391,0	417,0	453,0	474,0
5,0	415,0	435,0	471,0	492,0
6,0	433,0	453,0	489,0	515,0
7,0	451,0	471,0	512,0	533,0
8,0	469,0	494,0	530,0	551,0
9,0	492,0	512,0	548,0	569,0
10,0	510,0	530,0	566,0	598,0
11,0	528,0	548,0	595,0	616,0
12,0	546,0	577,0	613,0	634,0
13,0	575,0	595,0	631,0	
14,0	593,0	613,0		
15,0	611,0			

Assembly

Please check the foundation and the transport direction (location of inlet and outlet), before starting the assembly.

It is important to read these instructions carefully before starting the assembly.

Check that there is sufficient space available.

Attention!

Before starting the assembly work, check that the required safety equipment is at disposal, e.g. work gloves, safety footwear, helmet, safety glasses and a lifeline, if necessary. This equipment is not included as standard.

Assemble the elevator in two parts, top and bottom section:

- The bottom part consists of the elevator boot, 2.5 m extension with inspection door (the assembly of the chain is made through this door) and elevator extensions corresponding to half the height of the elevator.
- The top section consists of the elevator head and the remaining number of extensions, and must be assembled with the chain - remember that the overlapping plate must be facing downward.
- The elevator extensions with inspection doors must be fitted at the elevator base plate, and the end with inspection door in the return channel must be facing downward.

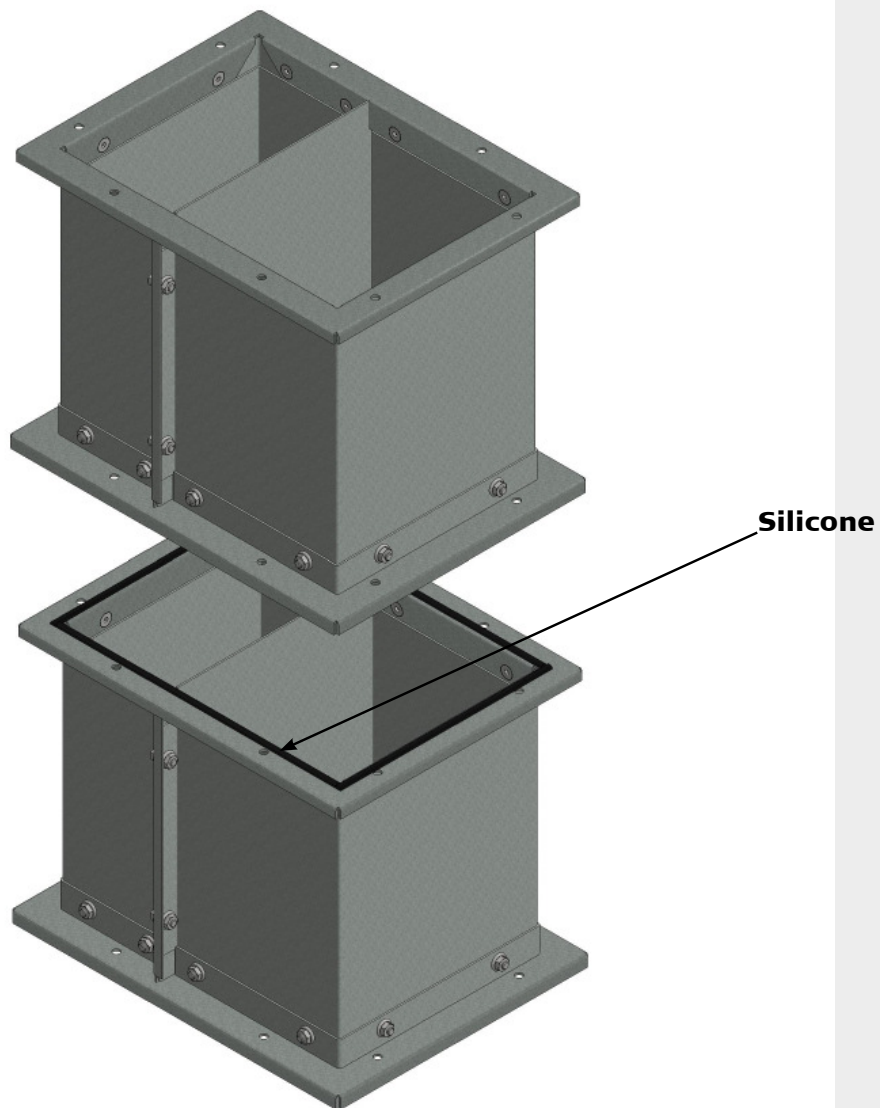
Assemble the top- and bottom section, once the individual sections have been assembled.

Sealing

All the joints must be sealed with a sealing compound in order to avoid dust and moisture nuisance.

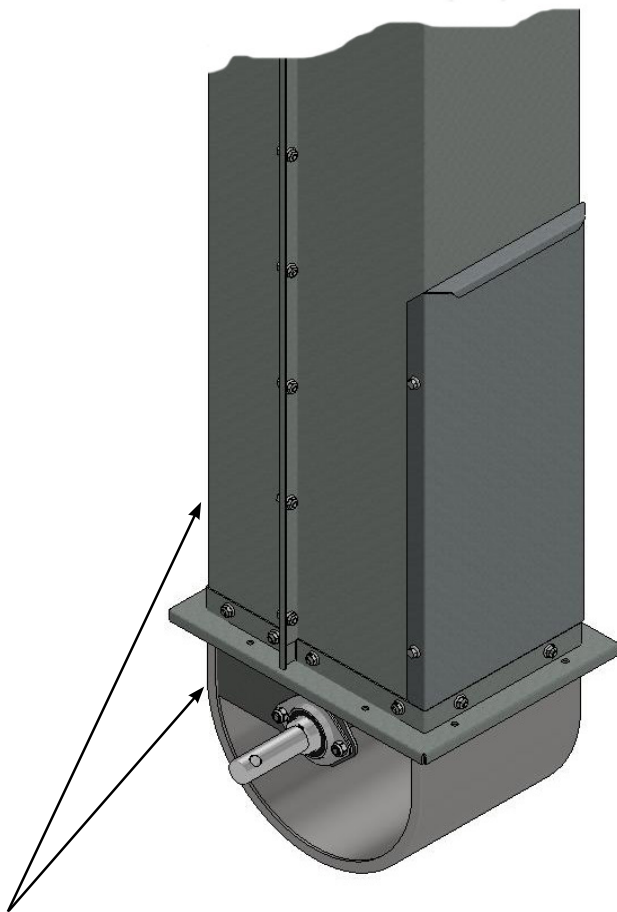
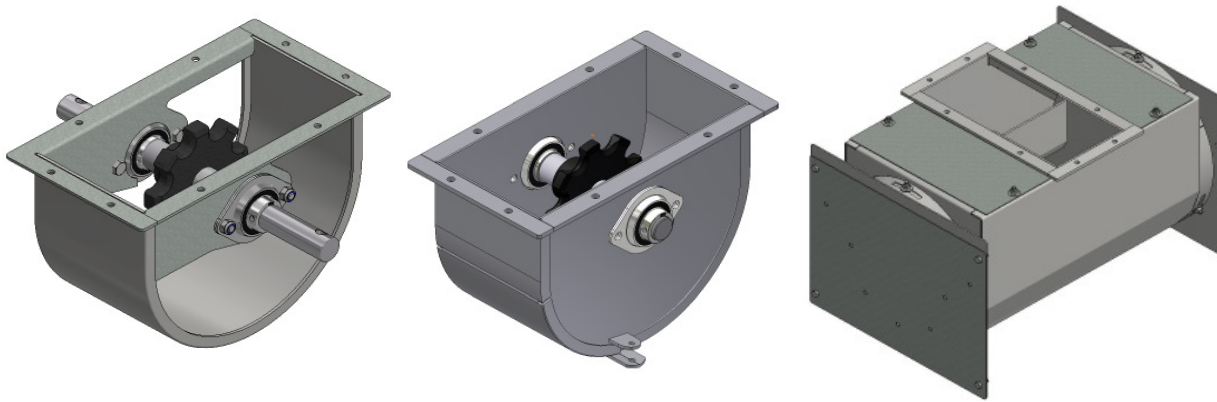
The sealer must be applied at the flanges inside the holes.

After sealing the joints must be bolted together.



Elevator boot section

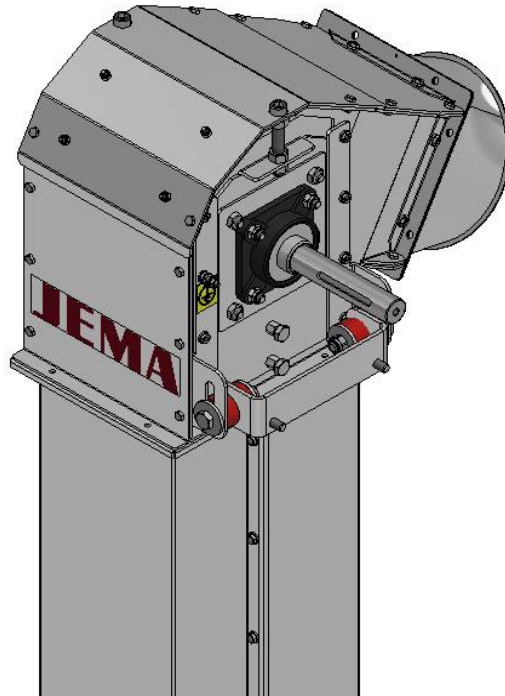
Fit and properly attach the boot part to the foundation - then mount the extensions.



Important! Open elevator boot and elevator extension have to be mounted as shown.

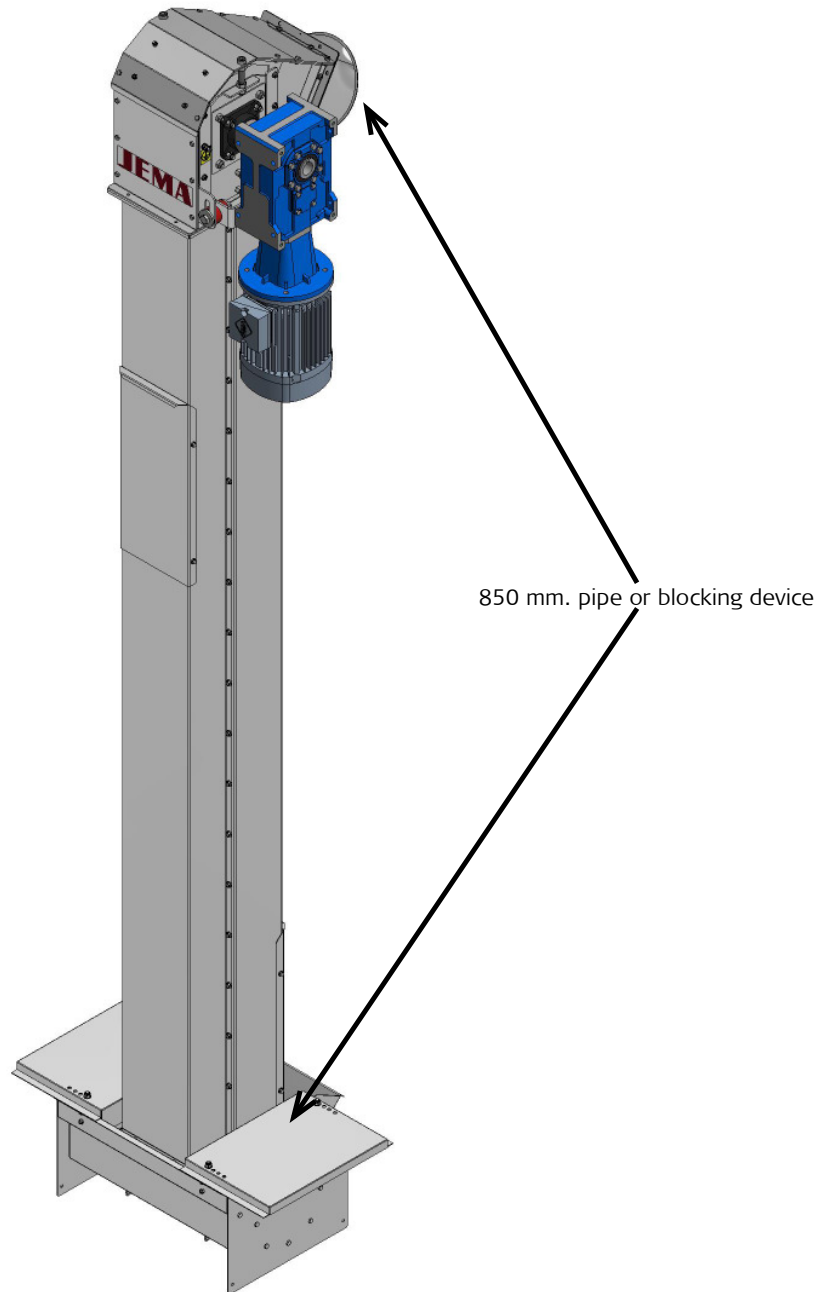
Elevator top section

Assemble the elevator top section on the floor. Fit extensions to the elevator head in dimensions corresponding to half of the total elevator height. When the extensions are fitted, fit the chain with rubber slats (see instructions in the section "Elevator chain").



Warning!

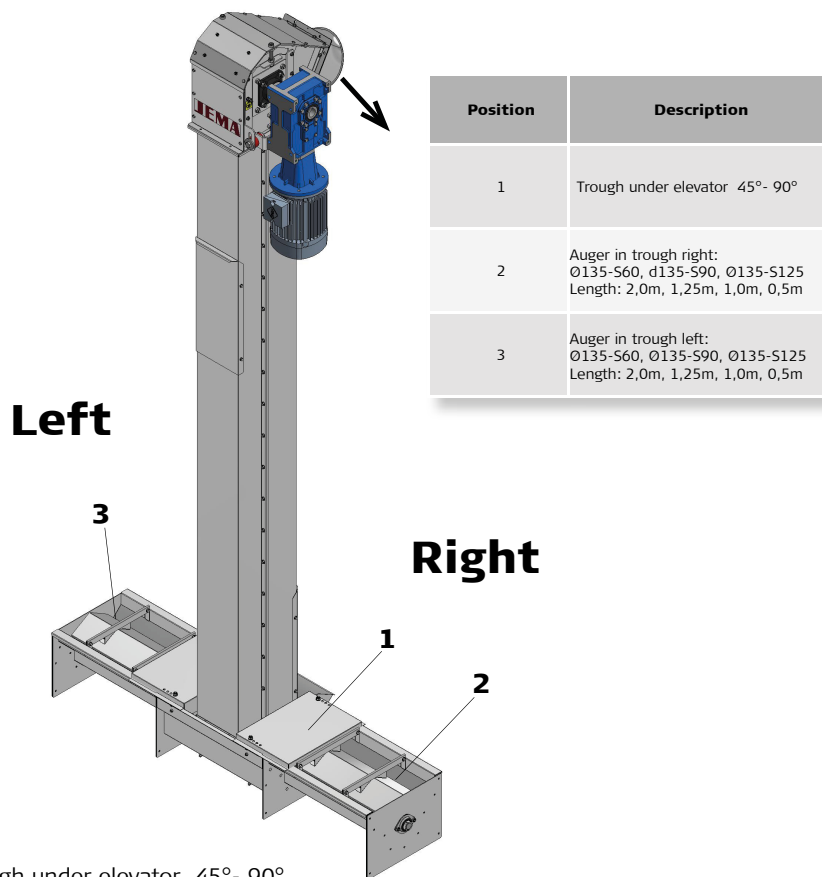
It is important to fit a pipe of min. 850mm or another type of blocking device to avoid the risk of somebody sticking a hand or arm into the machine.



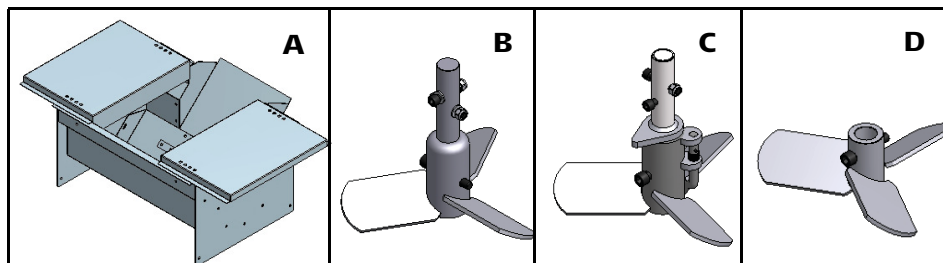
Chain elevator with auger trough $\varnothing 135$

Fit propellers, propeller with pin or with pin and free wheel, to the bottom shaft of the elevator, and fit augers, if specified, to these.

Make sure that propellers and augers are fitted on the right side, so the material is directed towards the elevator. Attach the cover above the augers and the trough cover plates.

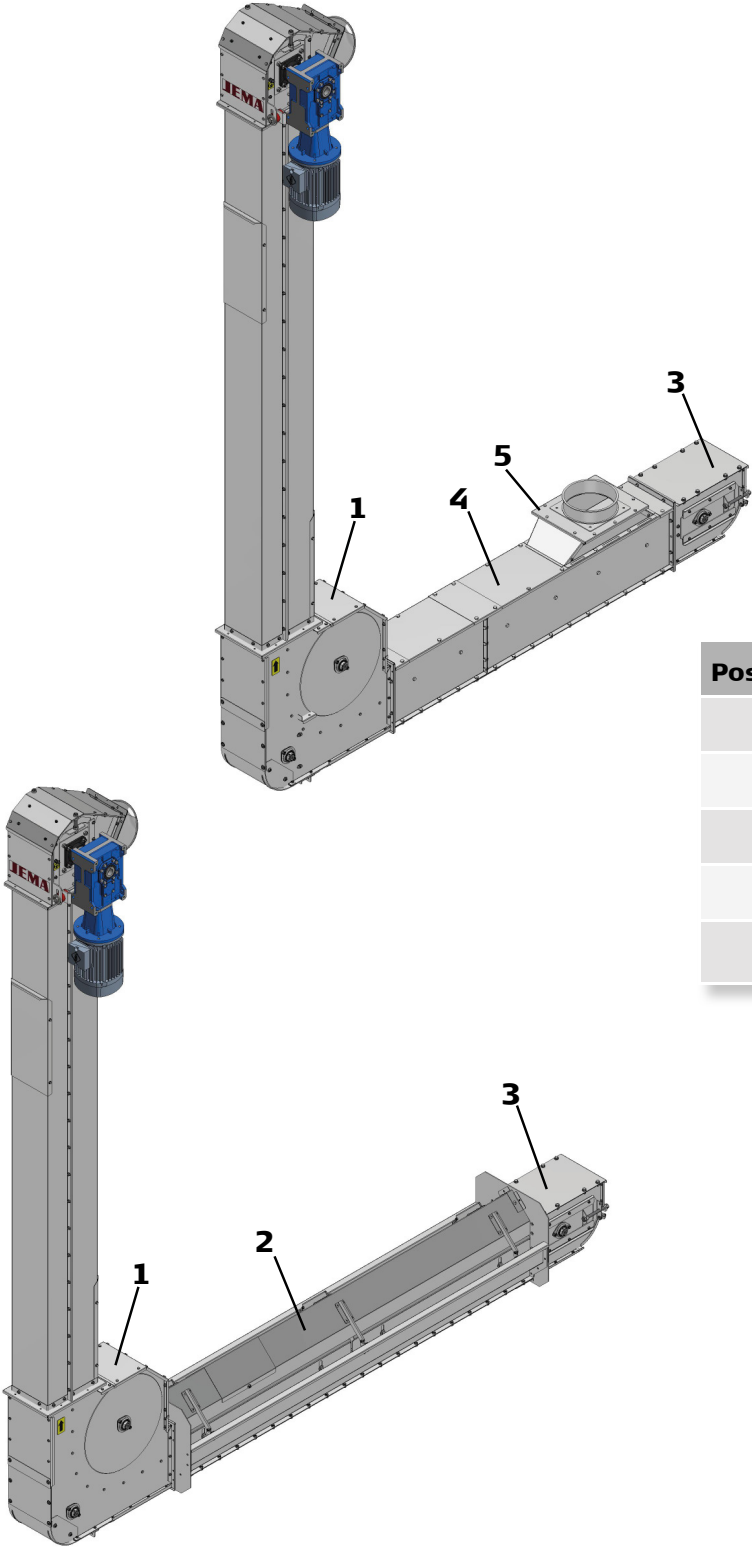


- A. Trough under elevator 45°- 90°
- B. Propeller with pin d135
- C. Propeller with pin and free wheel d135
- D. Propeller without pin



The shown propellers are right.

Chain elevator with 90° bend



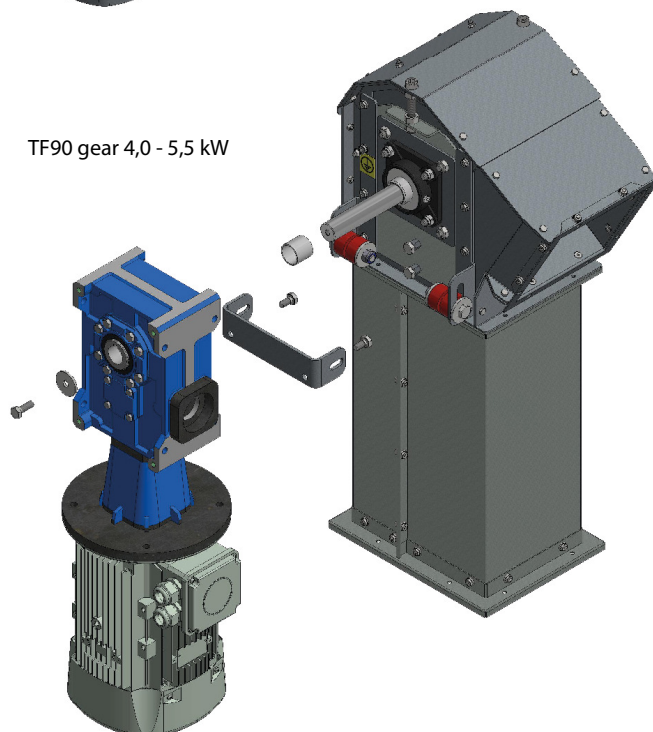
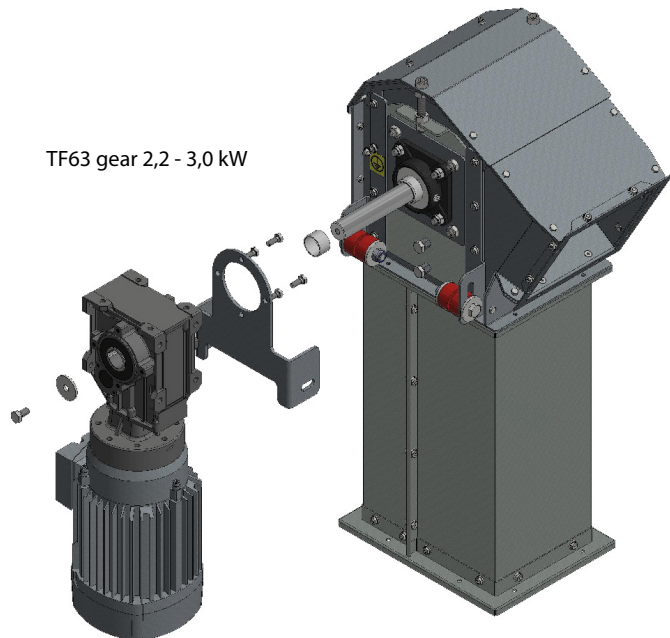
Position	Description
1	90° bend
2	Inlet trough
3	Tightening section
4	Horizontal extension
5	Inlet for horizontal extension

Gear motor assembly

Fit the gear motor on the drive shaft (see drawing below).

Important!

The breather on the gear must always be fitted in the top position (only for TF90 gear 4,0 -5,5 kW).



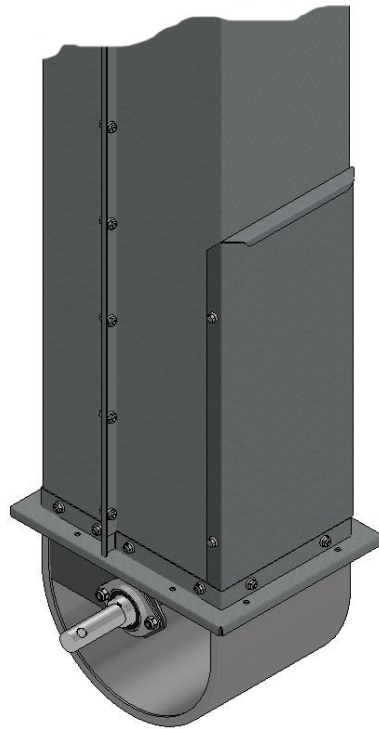
For maintenance of motor and gear: please see the attached supplier documentation.

Elevator extensions

Fit the elevator extension with inspection doors to the elevator boot for sufficient space for later assembly of the chain, as this has to be done through the extensions inspection doors.

Fit the extensions as shown on the drawing (if available).

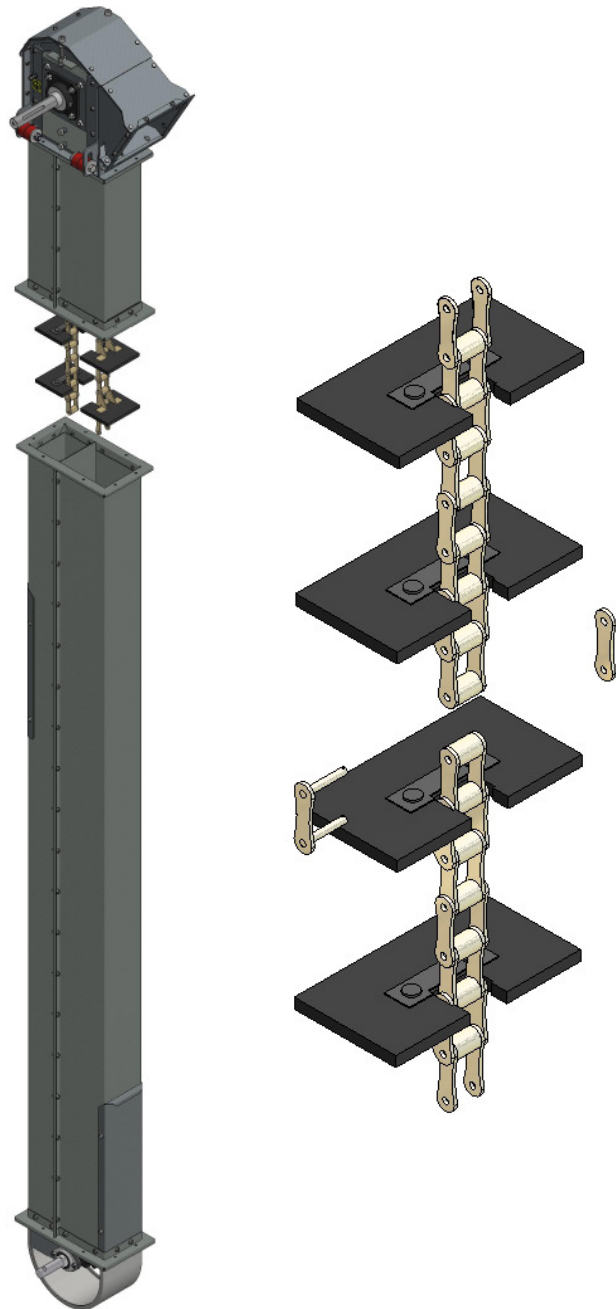
The elevator must be constantly secured during the fitting – see section “Height attachment”.



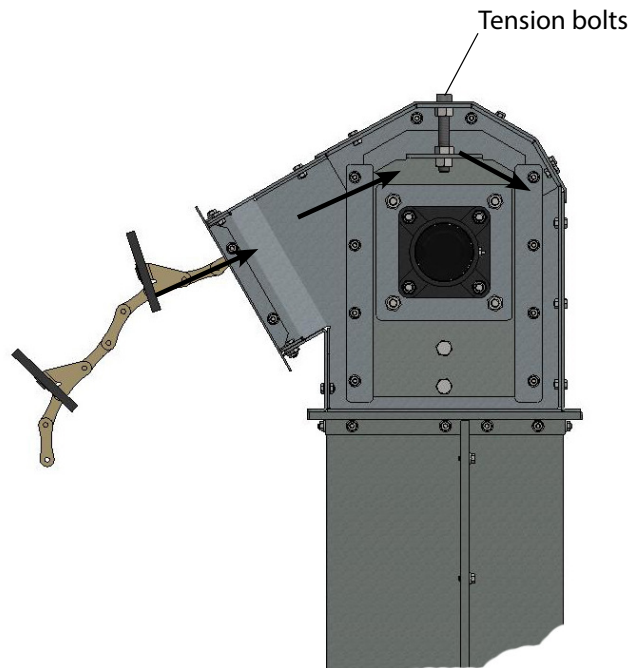
Elevator chain

The conveyor chain is equipped with rubber slats, and the chain must be fitted in the elevator, before the elevator head with extension is hoisted (see drawing).

When the elevator top section with the chain has been lowered into the bottom part, assemble the chain with the enclosed belt lacers.

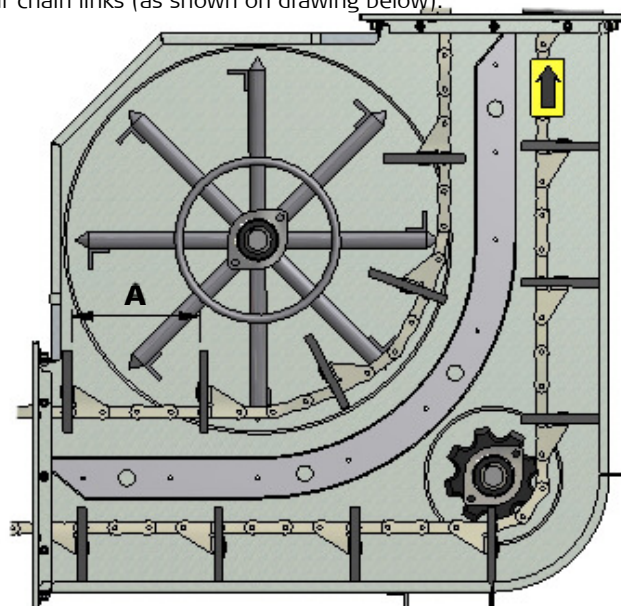


If this is not possible, due to lack of space, insert the chain through the elevator head outlet (see drawing below), insert the complete chain down the channel. Then insert half of the chain into the return channel, so the chain is evenly distributed in both channels. Block the chain with a rope or wire, and pull one end of the chain around the bottom sprocket and lift it up to the inspection door. Check the chain length (loosen the tensions bolts on the elevator head). If the chain needs shortening, it can be disassembled with a thin chisel. Assemble the chain – use only new clips in the connector links. Tighten the chains with the bolts on the elevator heads with a few mm play at the lower sprocket.



Important!

When fitting and tightening the chain on machines with inclinations, always keep the same distance between the slats (pos. A), and always fit one slat for each four chain links (as shown on drawing below).

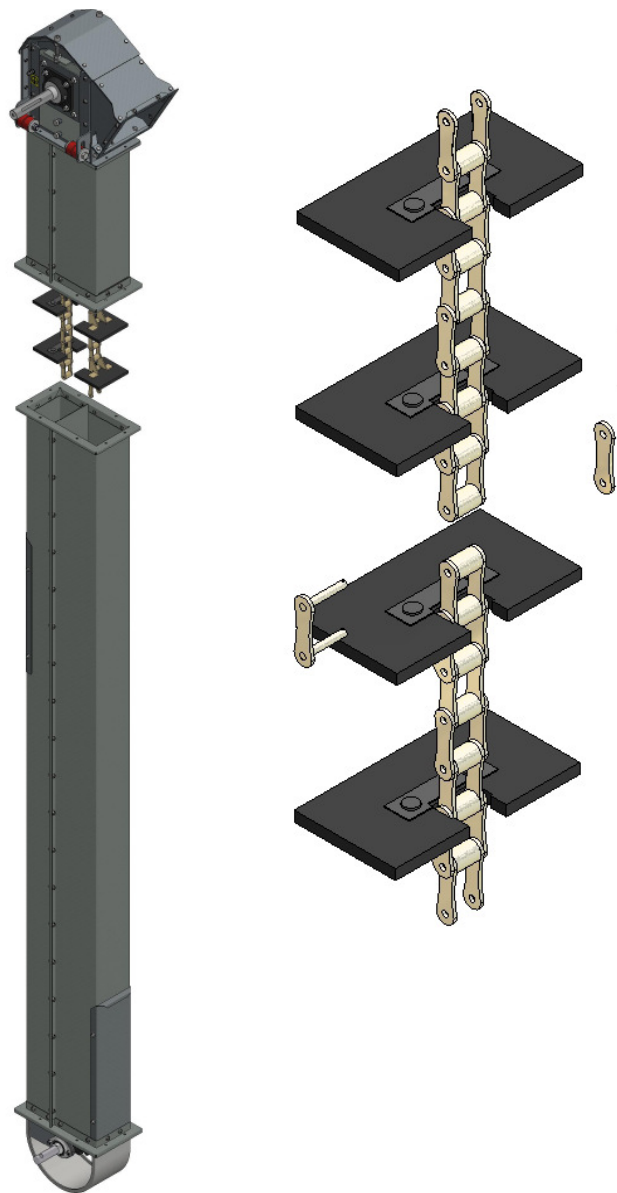


Elevator assembly

Always use correct and approved SWL-lifting equipment for the elevator assembly. Read the section "Upon receipt" before starting the assembly work.

Before lifting the elevator, the chain must be locked - e.g. with a rope or wire. Unlock the chain before assembly.

Assemble the chain with the chain connector, when the elevator top and bottom part have been fitted (see drawing below).



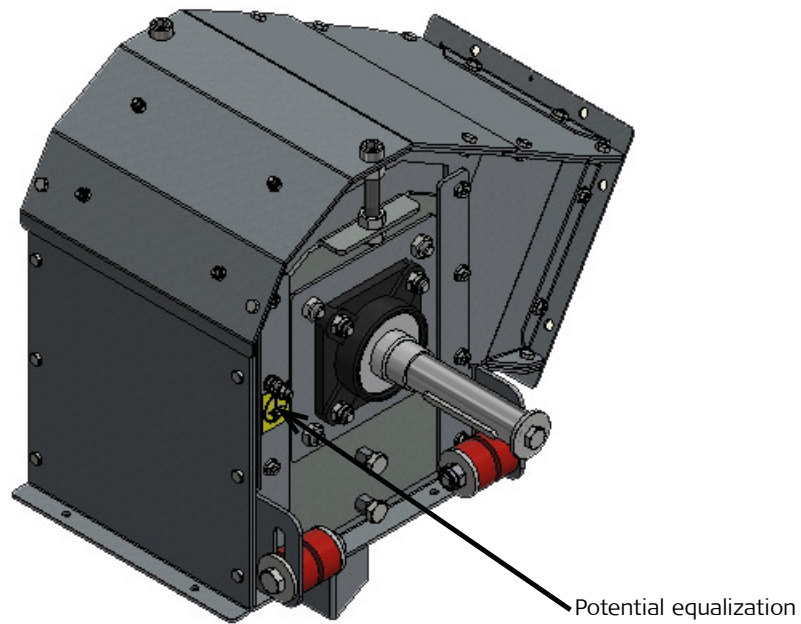
Important!

Remember to fit all inspection doors after assembly.

Potential equalization

The potential equalization must be carried out according to the current regulations.

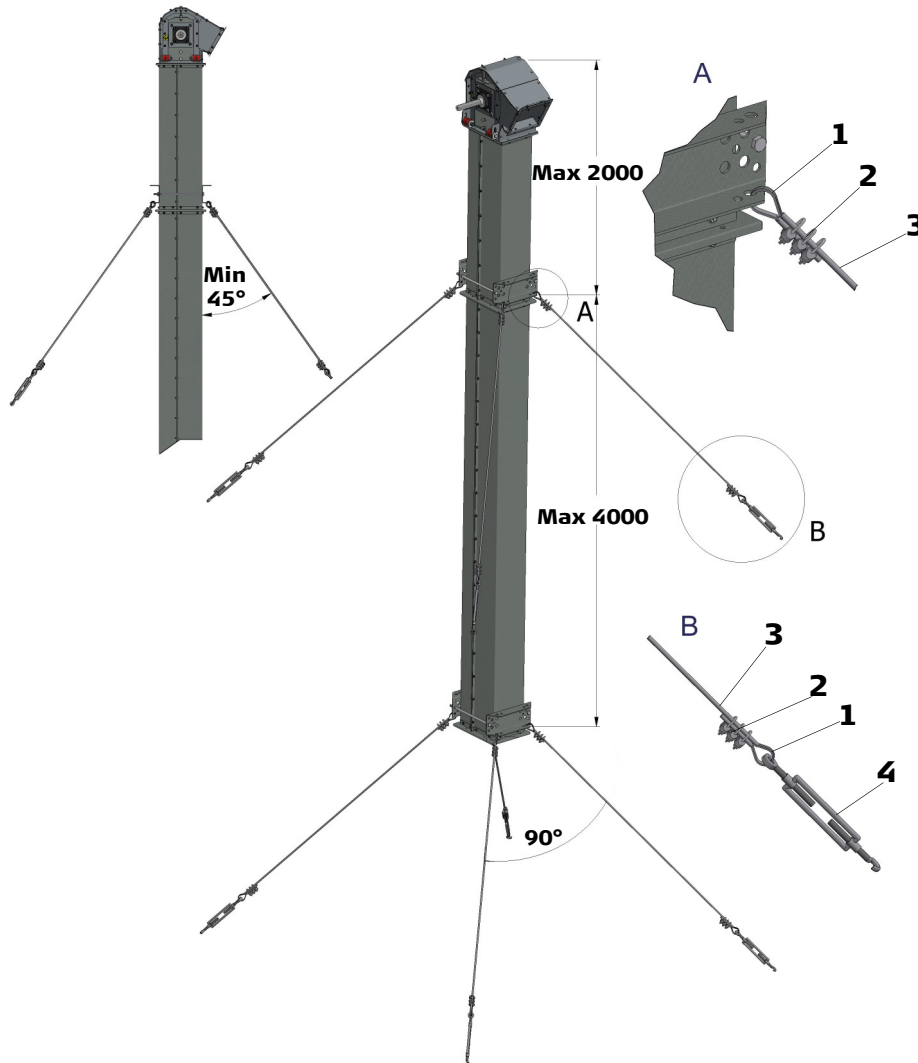
A label on the elevator head indicates the correct point of the potential equalization. The equalization is important to secure that the machine is metalically connected.



Attachment

In order to obtain the maximum stability, it is important to stabilize the elevator vertical position. There must be a distance of maximum 2.0 m from the elevator head to the top attachment, and 4 m between the following fixation points.

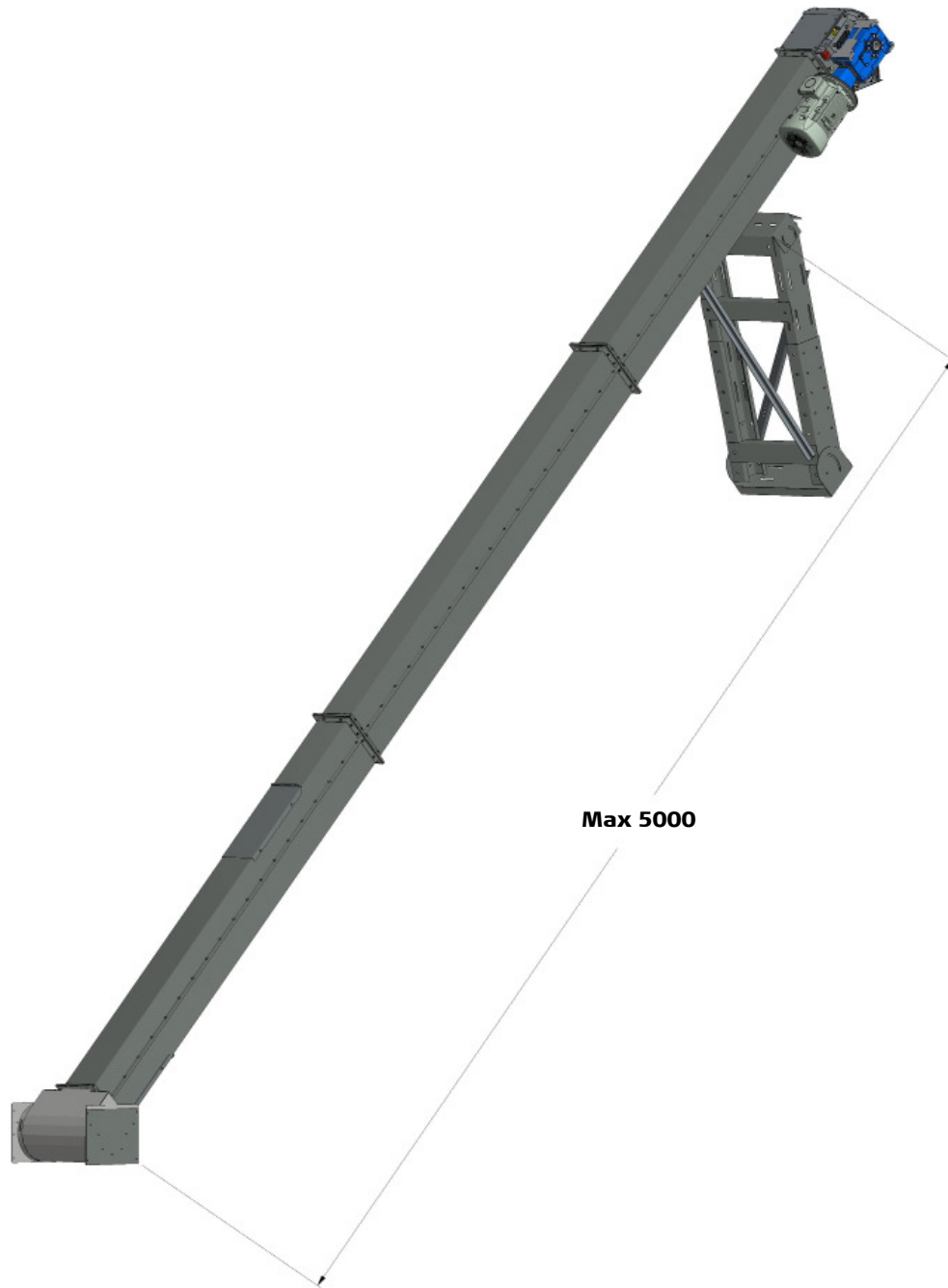
The angle between the wires and the elevator must be max. 45°, and 90° between the wires (see below drawings).



Pos.	Description	T20	Kg.	T40	Kg.
1	Wire thimble for 8mm wire	92112	0,032	92112	0,032
2	Wire rope clips for 8mm wire	92113	0,032	92113	0,032
3	Wire 8mm (weight per m.)	92114	0,194	92114	0,194
4	Wire idler for 8mm wire	92115	0,400	92115	0,400

Support of increasing elevator

It's important that the elevator is fixed to ensure stability.
Max. distance between the support points is 5 meters.



Starting up

Before starting to work with the chain elevator, please check that:

- All inspection doors are fitted
- No work is carried out on/near the machine.
- The motor rotation direction is correct.
- All bolts are correctly fitted and tightened.
- The chain is correctly fitted and adjusted.
- The attachment and stability of the chain elevator is correct.
- Check after start that no joints are leaking.
- If fitted, check for correct tension of the pulley.

Elevator stops – faultfinding

In case of stops, check first whether the elevator is able to start again, when the relay has cooled. If this is possible, the fault is either caused by low adjustment of the relay or lack of motor capacity. Check if the motor is correctly connected by the electrician.

If the elevator is still not able to start without being emptied of material, check whether the return tube (downward passage) on the conveyor is filled with material in the first section (open the inspection door). In this case the fault is due to blockage of the elevator drain (drain tubes too small or insufficient slope) or caused by stops further along in the transport system.

Maintenance

Please see the maintenance summary and the attached supplier documentation for cleaning- and maintenance intervals.

Warning!

- During cleaning and maintenance work, the electric supply for the chain elevator must be disconnected and secured against accidental reconnection.
- After repair and maintenance the inspection doors and shields must be refitted before the work is continued.

Always use original parts only

In case that original parts are not used, the warranty becomes void, and JEMA AGRO A/S can no longer be held liable for the EU Declaration of conformity.

Gear motor

Check the gear as described in the attached supplier documentation.

Important!

Check that the breather is fitted in the top position on the gear - only TF90B gear.

Motor

Bearing noise from the motor: please see the attached supplier documentation.

Motor inspection: please see the attached supplier documentation.

Retorque the motor as indicated in the maintenance summary. Please see the assembly guidance for instructions.

Elevator chain

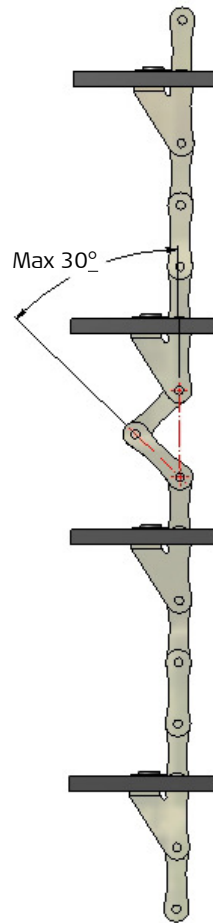
Check that the chain tension is correct.

Tighten the belt by using the 12 mm bolts on the top of the elevator head.

See drawing for correct procedure.

IMPORTANT! When tightening the chain, loosen the torque arm.

See inspection intervals in the maintenance summary.



Rubber slats

Defective or worn rubber slats must be replaced. See the maintenance summary.

Bearings.

Check the bearings for wear/play, and lubricate as described in the maintenance summary.

Check for wear/play by lifting up the shaft and check manually.

Make sure that there is no water in the pit, as this will damage the bearings in the elevator boot section.

Lubrication of bearings

Important!

Always keep the lubrication intervals as stated in the maintenance schedule.

It is extremely important to use the correct amount of grease, as too much will damage the sealing of the bearing, which will result in leaks and subsequent overheating of the bearing.

Check the amount of grease per grease gun stroke.

Elevator head

Lubricate the 2 bearings in the elevator head with 3.0 g grease as described in the maintenance summary.

Elevator boot

Check, and if necessary, change the two bearings in the elevator boot after 8000 hrs of operation.

Leaks

Any leaks must be repaired immediately.

Nose and vibrations

Stop the chain elevator immediately and identify the problem.

Disposal

The methods of disposal must comply with the current local regulations

Warning!

The electric supply to the motor must be disconnected during the disassembly.

Disassemble the elevator on the floor, if space allows, following the reverse order of the assembly procedure.

If the chain elevator is disassembled at the premises, start by removing the motor. For elevators with pulley drive, the pulley must be removed first, then the motor, the large pulley sheave and finally the guard.

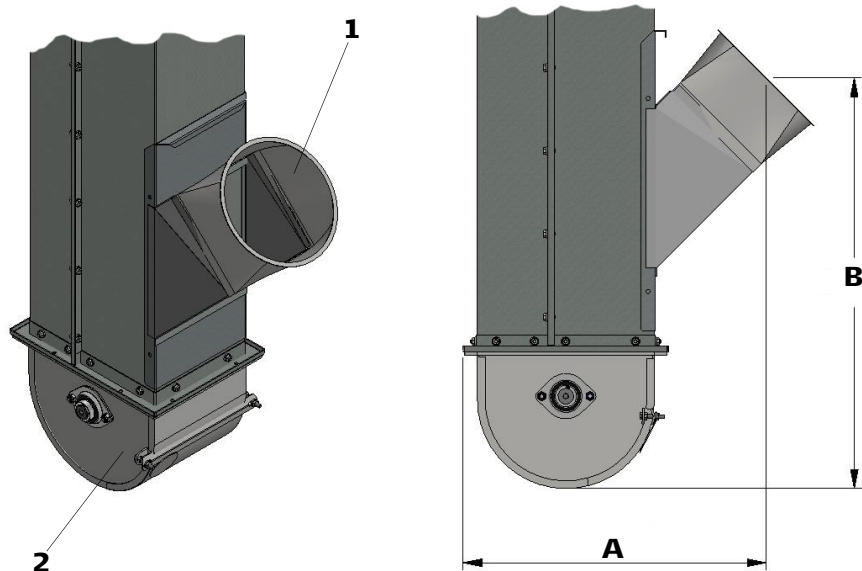
The easiest way to remove the chain is to dismantle the connector joint at the bottom of the elevator and then pull out the chain through the bottom inspection door. Screw off the motor stand and the elevator head. Finally remove all extensions.

The chain elevator contains various materials that can be reused. All metal parts should be delivered to a recycle industry.

Options/accessories

A range of various options/accessories is available for the chain elevator, if required.

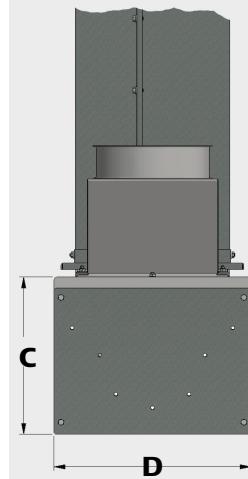
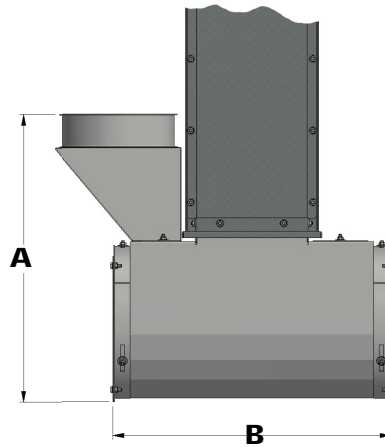
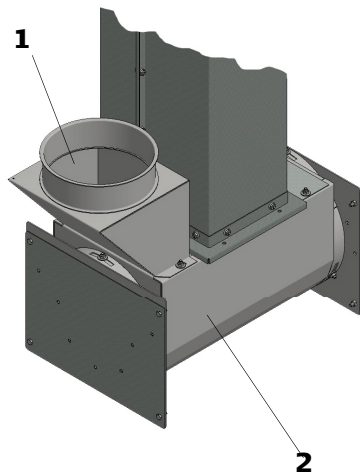
Inspection door with inlet



Pos.	T20	T40
A	425	475
B	580	650

Pos.	Description	T20	Kg.	T40	Kg.
1	Inspection door with inlet 45° OK160 / SK200	51467	2,000	52467	3,000
2	Elevator boot, closed	51231	7,000	52231	8,000

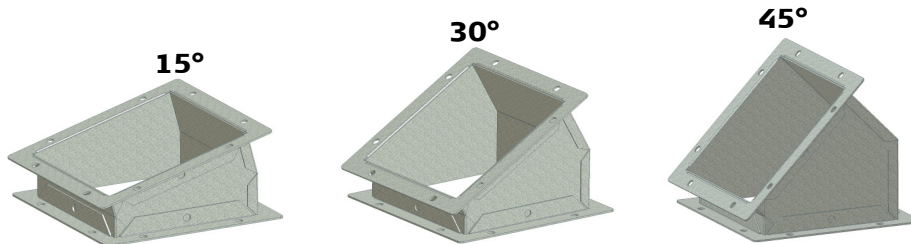
Inlet piece for flex-elevator boot



Pos.	Description	T20	Kg.	T40	Kg.
1	Inlet piece for flex-elevator boot OK160/SK200	51303	2,0	52303	4,0
2	Flex-elevator boot	51312	22,0	52312	22,0

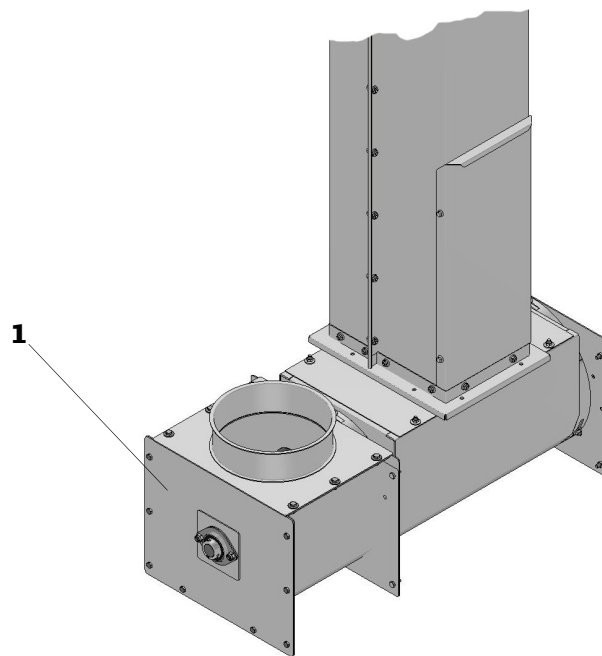
Pos.	T20	T40
A	500	500
B	500	500
C	265	265
D	355	355

Square bends 180x180



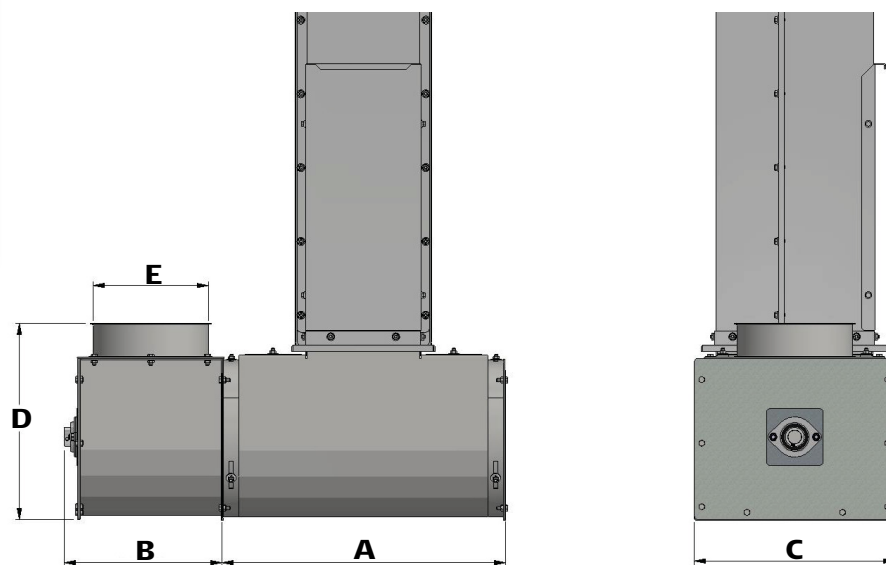
Description	T20/T40	Kg.
Square bend 15°, 180x180	00101	1,7
Square bend 30°, 180x180	00102	1,9
Square bend 45°, 180x180	00103	2,1

Inlet dia.200 one-way for T40 Flex-boot



Pos.	Description	Right	Kg.	Left	Kg.
1	Inlet dia.200, one-way for flex-boot section T40	52320	15,0	52321	15,0

Pos.	T40
A	500
B	280
C	355
D	350
E	d200

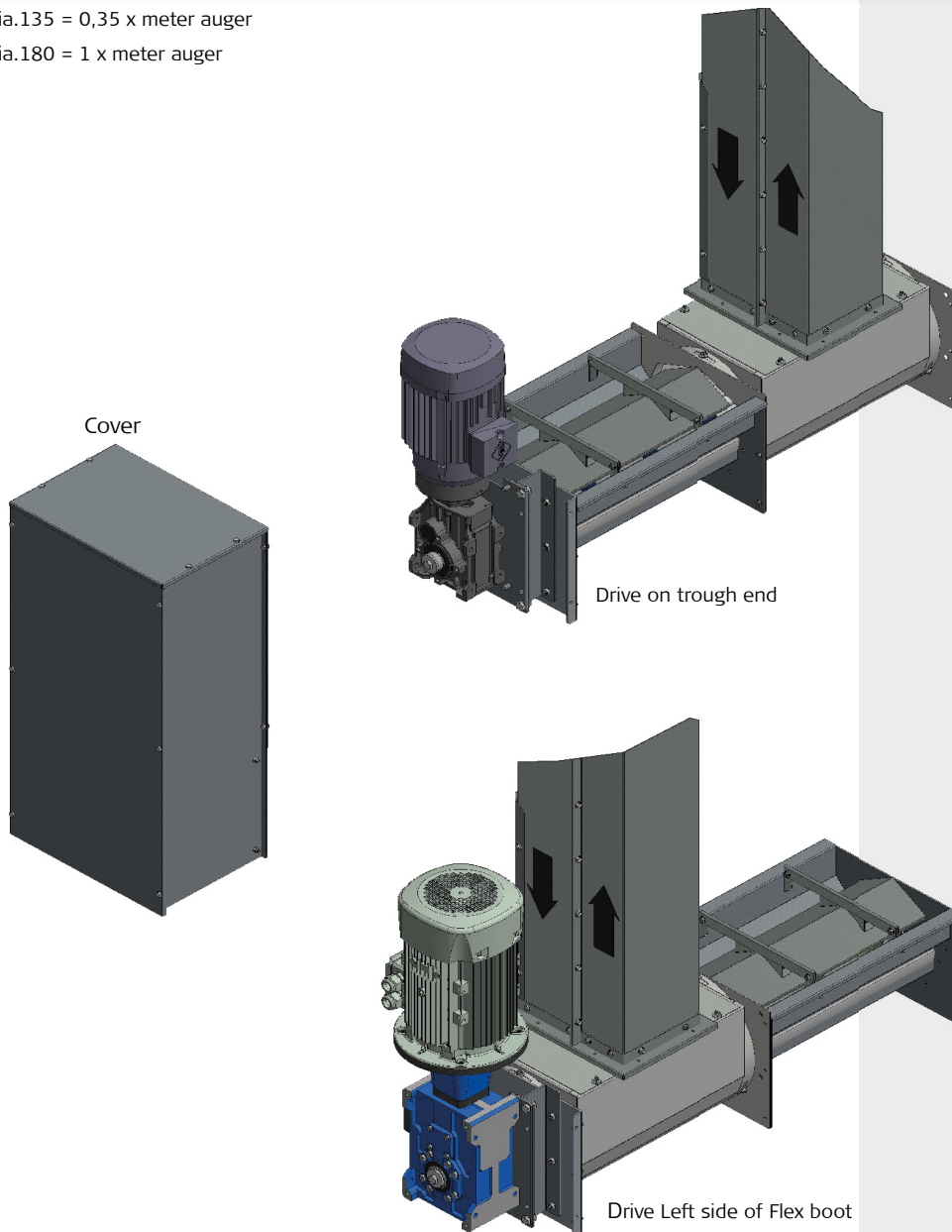


Gear motor drive for auger dia.135/180

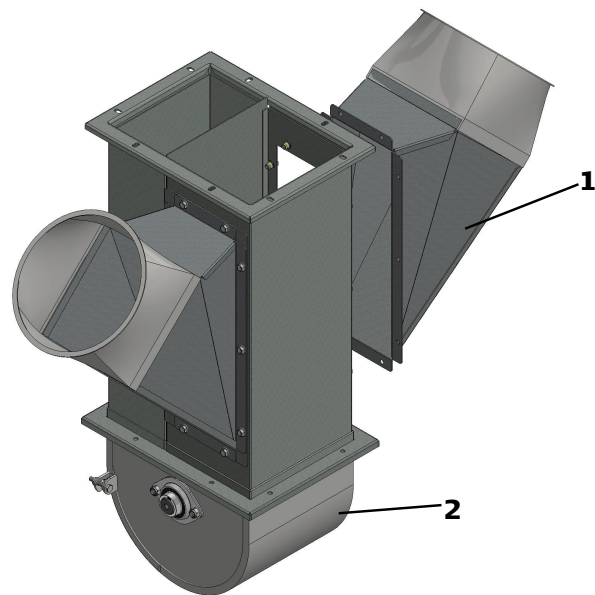
Tekst	dia.135 (20/T40)	dia.180 (T40)	Kg.
Bracket for drive Right side of Flex boot - with 2 x impeller.	52661	52681	16,0
Bracket for drive Left side of Flex boot - with 2 x impeller.	52662	52682	16,0
Bracket for drive on trough end - without impeller	52663	52683	12,0
Cover for gearmotor	52664	52664	14,0
2,2 kW gear motor TF63B	81560 (280 o/m)	81578 (225 o/m)	28,0
3,0 kW gear motor TF63B	81562 (280 o/m)	81576 (225 o/m)	29,0
4,0 kW gear motor TF90B	81603 (280 o/m)	81569 (225 o/m)	56,0
5,5 kW gearmotor TF90B	-	81574 (225 o/m)	65,0

kW for dia.135 = 0,35 x meter auger

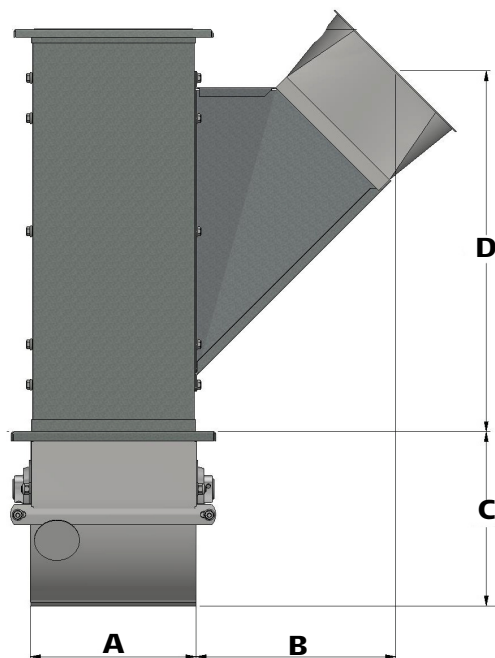
kW for dia.180 = 1 x meter auger



45° inlet for extension (return side)

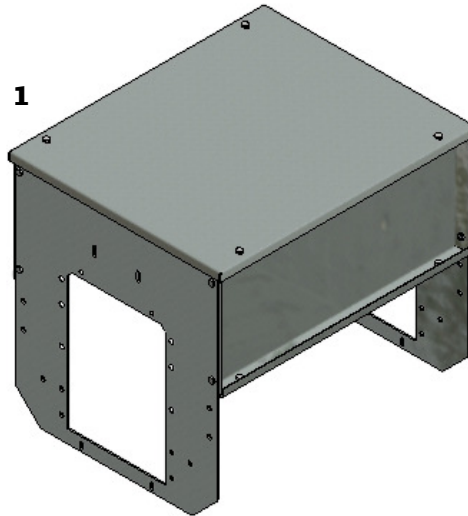


Pos.	Description	T20	Kg.	T40	Kg.
1	Inlet 45° d200, for cutout in extension (return side)	51250	3,0	51250	3,0
2	Closed elevator boot section	51231	7,0	52231	8,0



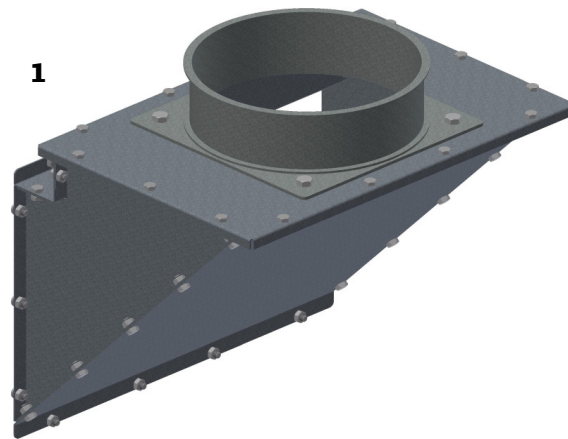
Pos.	T20	T40
A	175	240
B	250	250
C	215	215
D	413	413

Hopper for 0,5m inlet trough



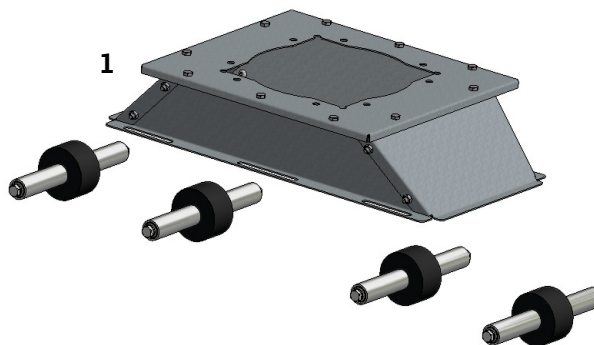
Pos.	Description	T20/T44	Kg.	T40/T45	Kg.
1	Hopper with cover for 0,5m inlet trough	44038	12,0	45038	13,0

Side inlet for horizontal extension



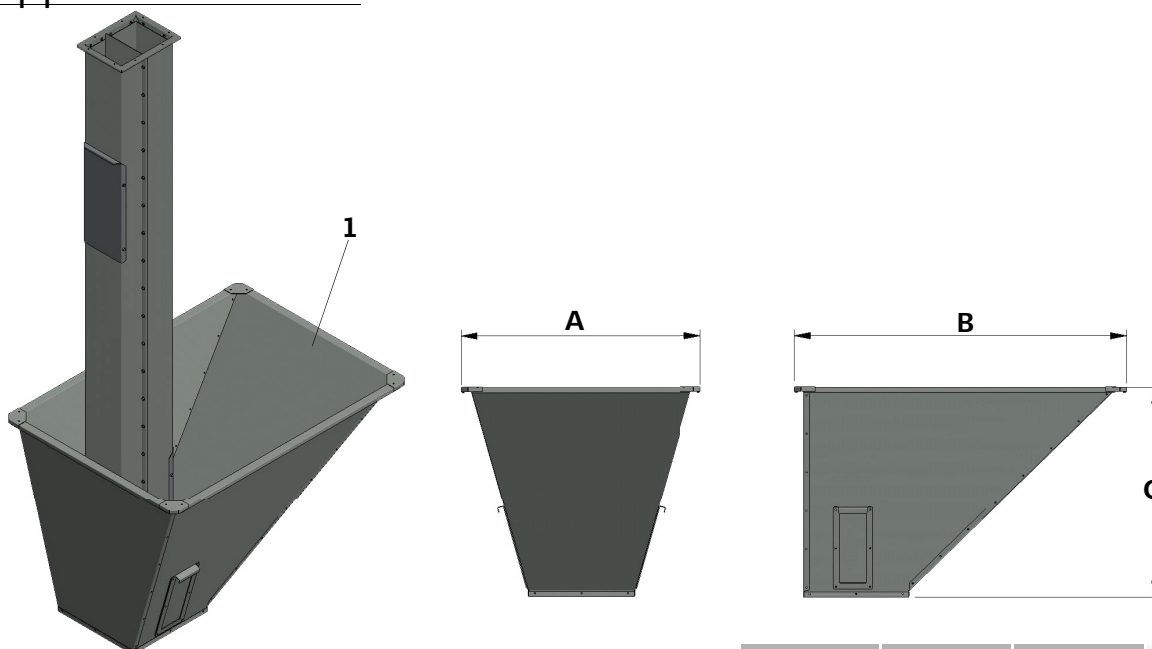
Pos.	Description	T20/T44	Kg.	T40/T45	Kg.
1	Side inlet for cutout in extension, SK200 / 180x180	51184	6,1	51184	6,1

Inlet for horizontal extension



Pos.	Tekst	T20/T44	Kg.	T40/T45	Kg.
1	Inlet for horizontal extension, 180x180 - with lifting rollers	51130	5,0	52130	5,7

Hopper for elevator

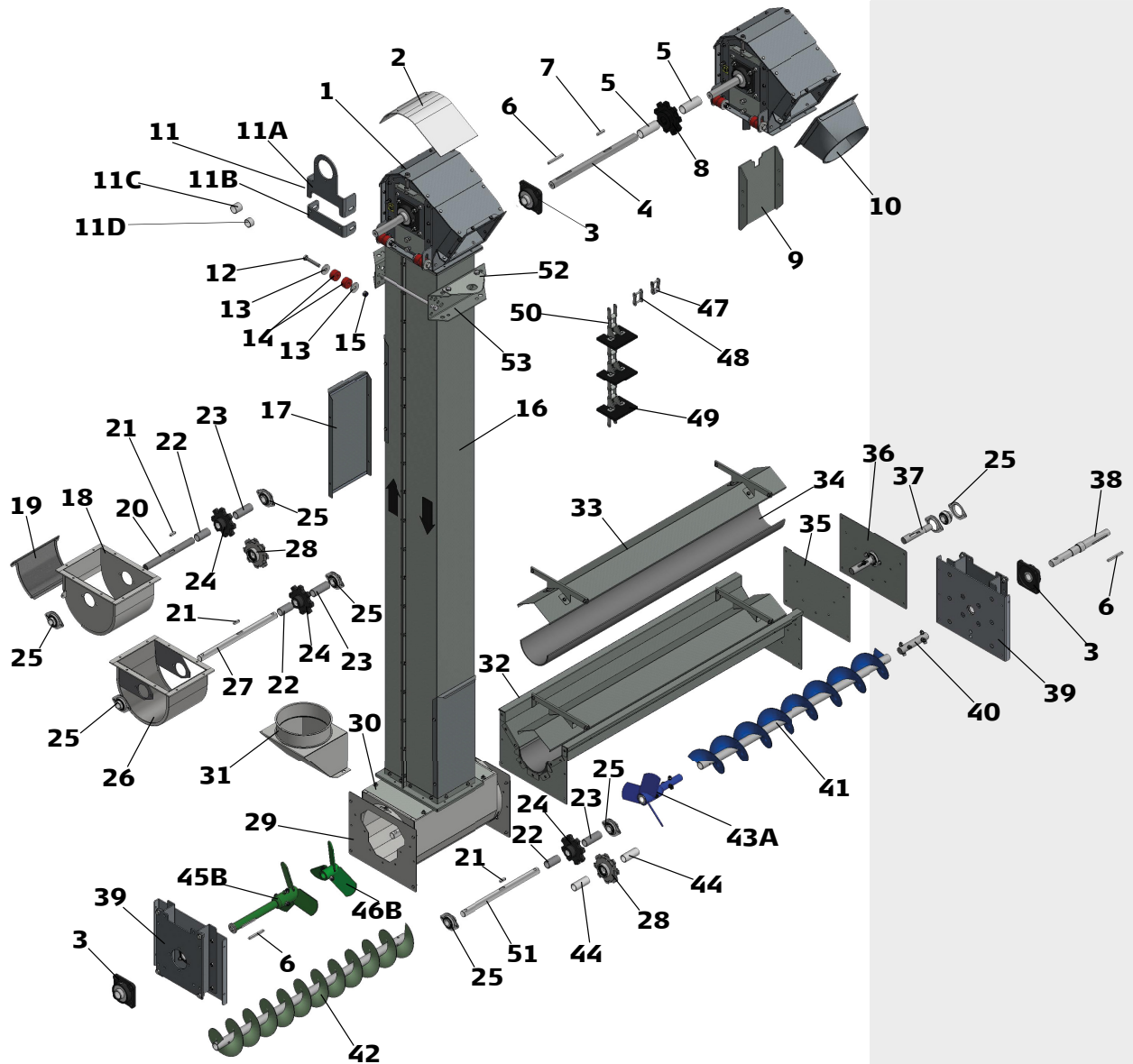


Pos.	T20	T40
A	930	930
B	1290	1290
C	890	890

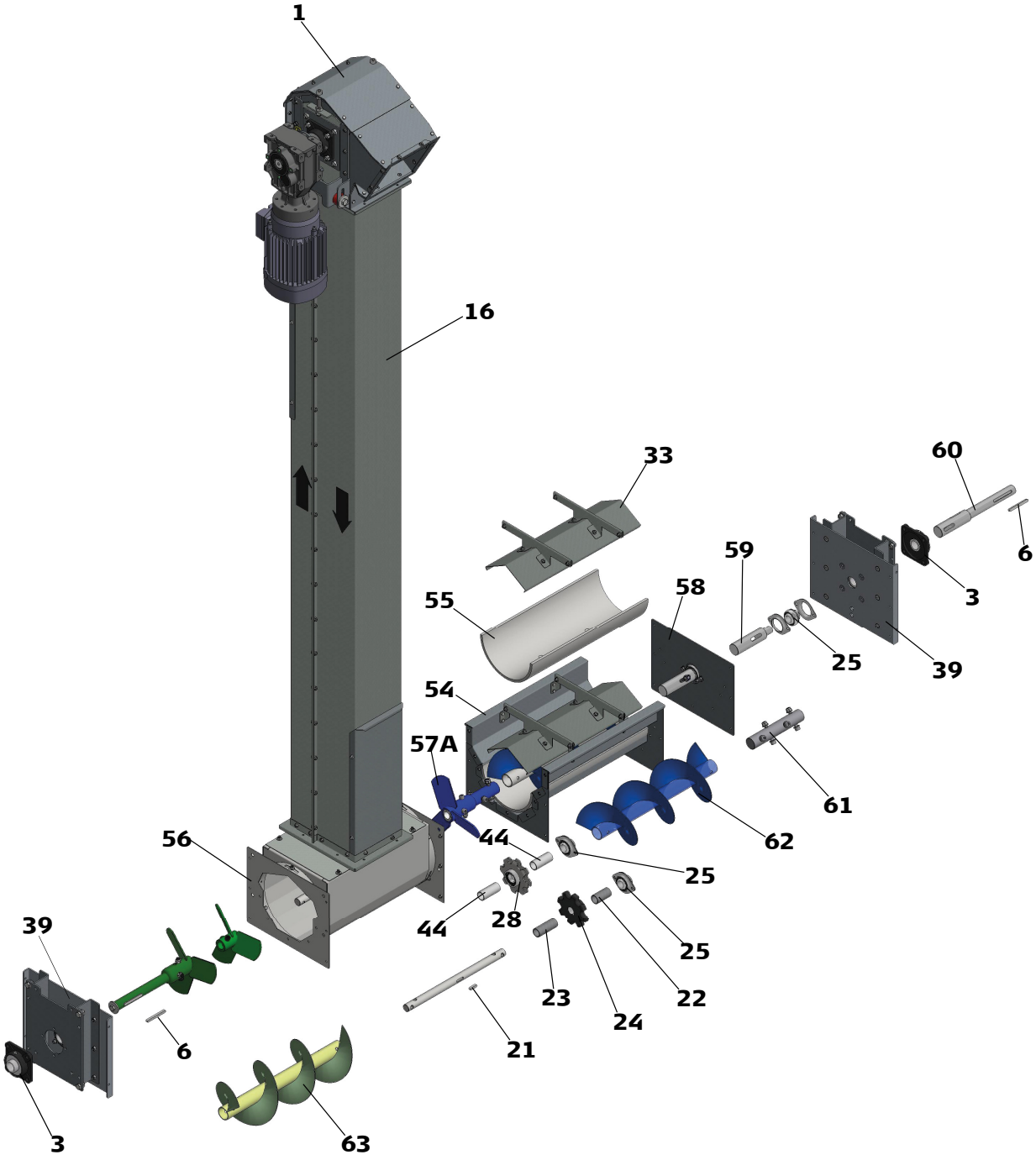
Pos.	Description	T20	Kg.	T40	Kg.
1	Hopper for elevator	00082	35,0	00082	35,0

Spare parts T20/T40

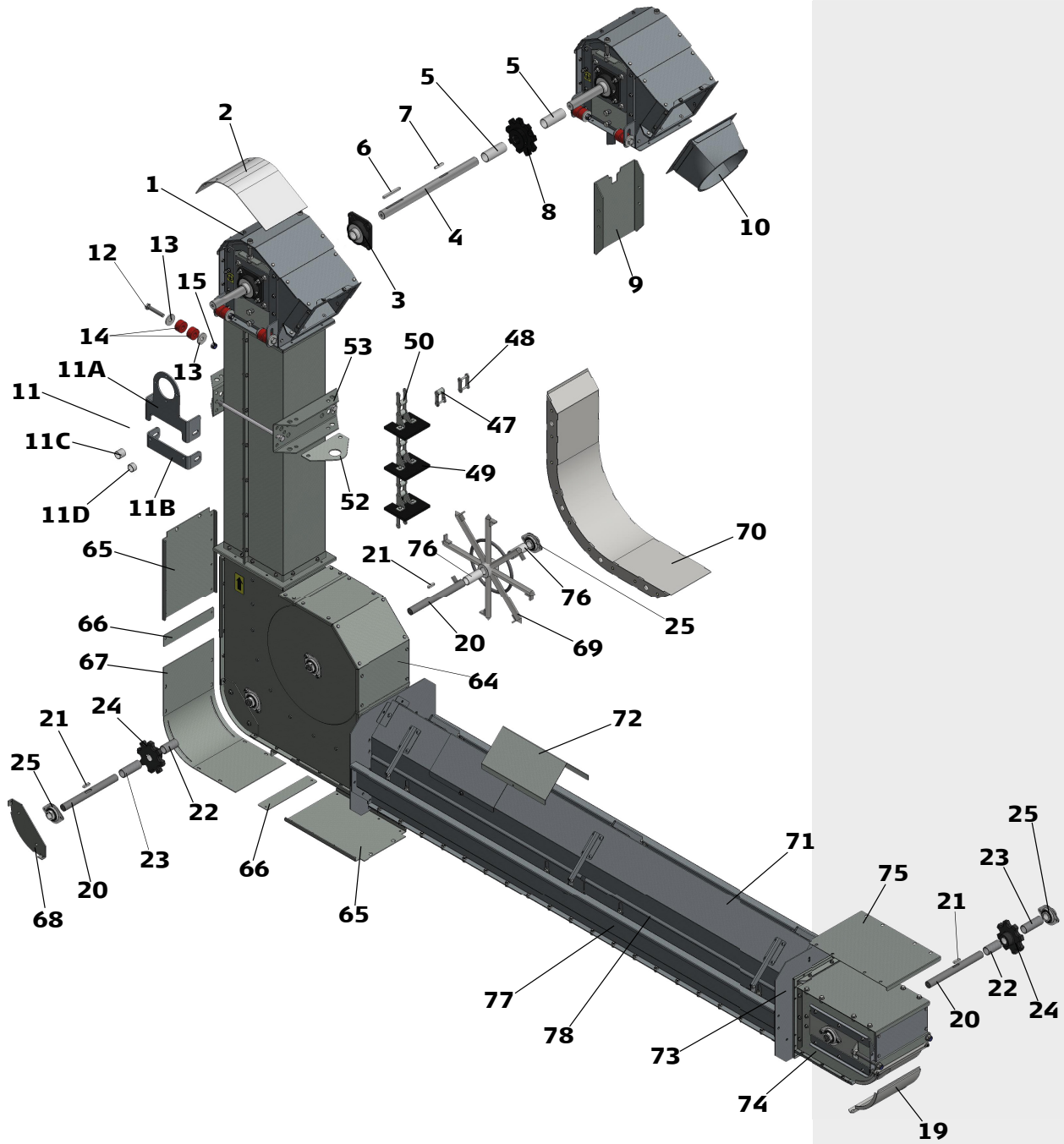
With dia.135 auger



With dia.180 auger



With 90° bend



Part list T20/T40

Pos.	Description	T20	Kg.	T40	Kg.
1	Elevator head right for gear motor	20400	26,00	40400	29,00
	Elevator head left for gear motor	20405	26,00	40405	29,00
2	Wear plate PEHD for elevator head	20401	0,20	40401	0,30
3	Bearing UCF 206, d30	85130	1,20	85130	1,20
4	Shaft f/elevator head with gear motor - T20: d30x380 / T40: d30x442	51580	2,00	52120	2,40
5	Spacer bush for elevator head - T20: Ø35/31x52 / T40: Ø35/31x86	20017	0,08	40017	0,13
6	Feather key 8x7x80	87066	0,04	87066	0,04
7	Feather key 8x7x40	87065	0,02	87065	0,02
8	Sprocket 9Z for elevator head, d30	83026	1,80	83026	1,80
9	Middle plate for elevator head	20400-3	1,10	40400-7	1,48
10	Transition piece square 180x180 - SK200	00115	1,10	00115	1,10
11	Torque arm compl. for gear motor TF63 / TF90	81325	1,80	81325	1,80
11A	Torque arm bracket for gear motor TF63	40403	1,23	40403	1,23
11B	Torque arm bracket for gear motor TF90	40404	0,53	40404	0,53
11C	Spacer bush TF90B gear, d35/31x32	52581	0,03	52581	0,03
11D	Spacer bush TF63B gear d35/31x27	51586	0,03	51586	0,03
12	Bolt M12x70	86316	0,08	86316	0,08
13	Washer d41/13x4	53083	0,04	53083	0,04
14	Rubber bush for Torque arm, d40/14x20	91520	0,03	91520	0,03
15	Lock nut M12	86611	0,02	86611	0,02
16	Extension 2.5 m with door, without chain	51012	34,30	52012	40,40
	Extension 2.5 m without chain	51021	33,20	52021	39,10
	Extension 2.0 m without chain	51022	28,00	52022	31,50
	Extension 1.0 m without chain	51024	26,80	52024	16,40
	Extension 0.5 m without chain	51025	8,10	52025	9,50
	Extension 0.25 m without chain	51026	4,90	52026	5,70
	Extension 0.125 m without chain	51027	3,30	52027	3,90
17	Inspection cover for extension	20013	1,00	40013	1,40
18	Elevator boot closed, complete	51231	7,00	52231	8,00
19	Inspection cover for closed elevator boot	20005	0,53	40005	0,74
20	Shaft for closed elevator boot/bend - T20: d25x186 / T40: d25x249	20230	0,70	40230	1,00
21	Feather key 8x7x30	87079	0,02	87079	0,02
22	Bush for elevator boot, short - T20: d30/26x25 / T40: d30/26x58	20038	0,02	40038	0,06
23	Bush for elevator boot, long - T20: d30/26x48 / T40: d30/26x78	20039	0,05	40039	0,08
24	Sprocket wheel, 8 teeth dia. 25	20036	1,10	20036	1,10
25	Bearing with flange UC 205 R3, d25 mm	85100	0,30	85100	0,30
26	Elevator boot open Ø135, complete	51142	7,00	52142	8,00
27	Shaft f/open elevator boot - T20: Ø25x335 / T40: Ø25x400	20037	1,20	40037	1,50
28	Sprocket wheel 8 teeth with bearing 6005, dia. 25	83037	0,75	83037	0,75
29	Flex-elevator boot, complete	51312	20,00	52312	20,70
30	Cover plate for Flex-elevator boot	51314	0,40	52314	0,30
31	Inlet piece for Flex-elevator boot d160/d200	51303	2,00	52303	4,00
32	Trough 2.0 with cover d135, without auger	51290	26,00	51290	26,00
	Trough 1.25 with cover d135, without auger	51291	17,00	51291	17,00
	Trough 1.0 with cover d135, without auger	51292	14,00	51292	14,00
	Trough 0.5 with cover d135, without auger	51293	8,00	51293	8,00

Pos.	Description	T20	Kg.	T40	Kg.
33	Cover 2.0 m for trough d135	51387	6,80	51387	6,80
	Cover 1.25 m for trough d135	51388	4,50	51388	4,50
	Cover 1.0 m for trough d135	51389	3,50	51389	3,50
	Cover 0.5 m for trough d135	51390	1,80	51390	1,80
34	PVC 2.0 m for trough d135	91062	3,12	91062	3,12
	PVC 1.25 m for trough d135	91064	1,95	91064	1,95
	PVC 1.0 m for trough d135	91065	1,56	91065	1,56
	PVC 0.5 m for trough d135	91066	0,78	91066	0,78
35	End plate for auger trough/flex-elevator boot/trough under elevator	20070	1,11	20070	1,11
36	End plate with shaft and bearing for auger trough d135	20176	2,00	20176	2,00
37	End shaft for auger trough d135	51350	0,58	51350	0,58
38	Drive shaft for TF63/TF90 gearmotor drive on auger trough d135	52666	1,50	52666	1,50
39	Console for TF63/TF90 gearmotor drive to auger trough d135/d180	52660	9,60	52660	9,60
40	Joining pin with bolts for auger d135 mm	20108	1,00	20108	1,00
41	Auger 2,0m. Left, without trough d135-S125	94012	7,00	94012	7,00
	Auger 2,0m. Left, without trough d135-S60	94126	7,00	94126	7,00
	Auger 2,0m. Left, without trough d135-S90	94102	4700	94102	7,00
	Auger 1,25m. Left, without trough d135-S125	94014	4,00	94014	4,00
	Auger 1,25m. Left, without trough d135-S60	94127	4,00	94127	4,00
	Auger 1,25m. Left, without trough d135-S90	94104	4,00	84104	4,00
	Auger 1,0m. Left, without trough d135-S125	94015	3,00	94015	3,00
	Auger 1,0m. Left, without trough d135-S60	94128	3,00	94128	3,00
	Auger 1,0m. Left, without trough d135-S90	94105	3,00	94105	3,00
	Auger 0,5m. Left without trough d135-S125	94016	2,00	94016	2,00
	Auger 0,5m. Left without trough d135-S60	94129	2,00	94129	2,00
	Auger 0,5m. Left without trough d135-S90	94106	2,00	94106	2,00
42	Auger 2,0m. Right, without trough d135-S125	94032	7,00	94032	7,00
	Auger 2,0m. Right, without trough d135-S60	94121	7,00	94121	7,00
	Auger 2,0m. Right, without trough d135-S90	94112	7,00	94112	7,00
	Auger 1,25m. Right, without trough d135-S125	94034	4,00	94034	4,00
	Auger 1,25m. Right, without trough d135-S60	94122	4,00	94122	4,00
	Auger 1,25m. Right, without rough d135-S90	94114	4,00	94114	4,00
	Auger 1,00m. Right, without trough d135-S125	94035	3,00	94035	3,00
	Auger 1,00m. Right, without trough d135-S60	94123	3,00	94123	3,00
	Auger 1,00m. Right, without trough d135-S125	94115	3,00	94115	3,00
	Auger 0,50m. Right, without trough d135-S60	94036	2,00	94036	2,00
	Auger 0,50m. Right, without trough d135-S90	94124	2,00	94124	2,00
	Auger 0,50m. Right, without trough d135-S90	94116	2,00	94116	2,00
43A	Propeller with pin Left, d135 mm	20041	2,00	20041	2,00
43B	Propeller with pin Right, d135 mm	20053	2,00	20053	2,00
44	Bush f/elevator boot with bearing - T20: d30/26x37 / T40: d30/26x70	20233	0,02	40233	0,04
45A	Propeller Left for TF gear motor drive on flexboot d135/d180, Ø30	52669	3,50	52669	3,50
45B	Propeller Right for TF gear motor drive on flexboot d135/d180, Ø30	52668	3,50	52668	3,50
46A	Propeller without pin Left, d135 mm	20040	1,00	20040	1,00
46B	Propeller without pin Right, d135 mm	20052	1,00	20052	1,00
47	Connecting link cranked for chain S55	87103	0,10	87103	0,10
48	Connecting link straight for chain S55	87102	0,10	87102	0,10
49	Rubber flap with plate and bolt	20171	0,14	40171	0,20
50	Chain cmpl. running metre	20028	2,00	40028	4,00

Pos.	Description	T20	Kg.	T40	Kg.
51	Shaft for Flex-elevator boot, d25x400	40037	1,50	40037	1,50
52	Winch hook fitting for support bracket	00083	1,00	00083	1,00
53	Support bracket	00081	3,00	0081	3,00
54	Auger in trough Right, 2,0m. d180-S160, compl.	-	-	52624	43,65
	Auger in trough Right, 1,0m. d180-S160, compl.	-	-	52622	22,58
	Auger in trough Right, 0,5m. d180-S160, compl.	-	-	52620	12,32
	Auger in trough Left, 2,0m. d180-S160, compl.	-	-	52625	43,65
	Auger in trough Left, 1,0m. d180-S160, compl.	-	-	52623	22,58
	Auger in trough Left, 0,5m. d180-S160, compl.	-	-	52621	12,32
55	PVC 2,0 m for trough d180	-	-	91059	6,30
	PVC 1,0 m for trough d180	-	-	91058	4,68
	PVC 0,5 m for trough d180	-	-	91057	1,57
56	Flex-boot d180 with bearing in sprocket for separate auger drive	-	-	52600	24,00
	Flex-boot d180 for auger driven by elevator	-	-	52642	24,00
57A	Propeller with pin Left d180, d38,5 pin	-	-	52609	2,79
57B	Propeller with pin Right d180, d38,5 pin	-	-	52608	2,79
58	End plate with shaft and bearing for auger trough d180	-	-	52613	3,62
59	End shaft for auger trough d180	-	-	52614	1,12
60	Drive shaft for TF63/TF90 gearmotor drive on auger trough d180	-	-	52667	1,92
61	Joining pin with bolts for auger d180	-	-	52617	2,13
62	Auger 2,0m. Left, d180-S160, without trough	-	-	94172	14,00
	Auger 1,0m. Left, d180-S160, without trough	-	-	94171	5,50
	Auger 0,5m. Left, d180-S160, without trough	-	-	94186	2,45
63	Auger 2,0m. Right, d180-S160, without trough	-	-	94170	14,00
	Auger 1,0m. Right, d180-S160, without trough	-	-	94168	5,50
	Auger 0,5m. Right, d180-S160, without trough	-	-	94185	2,45
64	Bend 90°	51060	37,00	52060	42,50
65	Gable plate for bend 90°	51060-8	1,59	52060-8	2,12
66	Joining plate for bend 90°	51060-9	0,13	52060-9	0,20
67	Wear plate front, bend 90°	51060-6	2,45	52060-6	3,38
68	Wear plate side, bend 90°	52060-7	0,41	52060-7	0,41
69	Return flow wheel for 90°/45° bend	83006	5,00	83006	5,00
70	Intermediate section, welded, for 90° bend	51059	7,26	52059	9,26
71	Inlet trough 2,0m. with inspection door, compl.	44300	49,10	45300	54,60
	Inlet trough 1,0m. compl.	44301	25,40	45301	28,30
	Inlet trough 0,5m. compl.	44302	13,80	45302	15,40
72	Inspection door for inlet trough	44170	0,85	45070	1,15
73	Transition piece for inlet trough/extension	44304	2,27	45304	2,41
74	Tension section compl.	44095	12,61	45095	13,77
75	Cover plate for tension/drive section	44088	1,14	45088	1,53
76	Spacer bush - T20: d30/26x32,5 / T40: d30/26x66	44060-6	0,03	40008	0,07
77	Side plate for inlet trough 2,0m	45300-1	7,10	45300-1	7,10
	Side plate for inlet trough 1,0m	45301-1	3,60	45301-1	3,60
	Side plate for inlet trough 0,5m	45302-1	1,82	45302-1	1,82
78	Return duct for inlet trough 2,0m	44169	18,00	45069	21,60
	Return duct for inlet trough 1,0m	44167	9,00	45067	10,80
	Return duct for inlet trough 0,5m	44168	4,50	45068	5,40

When ordering spare parts, please state elevator type (T20/T40) and part no.

Maintenance T20/T40

Maintenance				Log	
Description	Daily	Every 200 hours	Yearly	Date	Initials
Check for unusual sounds	x				
Check for unusual vibrations	x				
Check for arisen leaks	x				
Check that the motor is not covered with dust	x				
Check the tensionning of the chain		x			
Check the chain for damages			x		
Retightening of flights			x		
Retightening of motoren			x		
Check motor bearings for noise	x				
Check v-belt			x		
Check oil level			x		
Change of gear oil			x		
Greasing of bearings		x			

* Life time lubricated bearings has to be replaced after 8000 hours.

Only original spare parts must be used.

Usage of not original parts leads to a loss of warranty as well as JEMA's responsibility regarding the CE marking.



**ERFARING BYGGER
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